

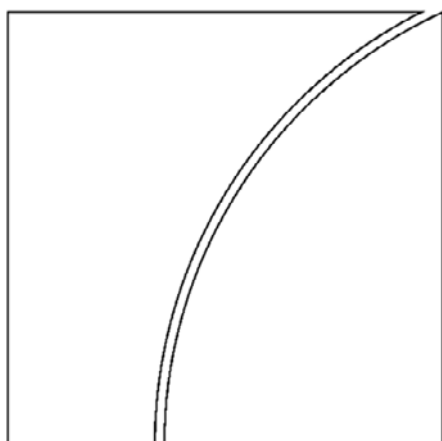
# Basel Committee on Banking Supervision

## Consultative Document

### **Revisions to the Basel Securitisation Framework**

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## Contents

Abbreviations .....	i
Executive Summary .....	1
I. Motivations for revising the securitisation framework .....	4
Performance of rated securitisations .....	4
Performance of unrated securitisations .....	4
Challenges to existing models of securitisation .....	5
Shortcomings of the securitisation framework .....	5
Revising the securitisation framework .....	7
II. Considerations around the hierarchy of approaches .....	7
Background: the hierarchy in the current securitisation framework .....	7
Proposed revisions to the securitisation framework hierarchies .....	8
III. Proposed approaches in the securitisation framework .....	12
Revised Ratings Based Approach (RBA) .....	12
Modified Supervisory Formula Approach (MSFA) .....	19
Simplified Supervisory Formula Approach (SSFA) .....	22
Concentration Ratio Based Approaches .....	27
IV. Other proposed changes and clarifications .....	30
Definition of maturity (M) .....	30
Elimination of requirement to deduct below-investment grade exposures for originators under the SA .....	30
Elimination of special treatment for certain exposures .....	31
Use of inferred ratings under the SA .....	31
Risk-weight floor .....	31
Maximum capital charge (overall cap) .....	32
Maximum risk weight for senior securitisation exposures (RW cap) .....	32
Interaction between floors and caps .....	33
Early amortisation provision revisions .....	33
Treatment of write-downs and purchase discounts .....	34
Revisions to the treatment of securitisation positions under the market risk framework	34
V. Key assumptions and theoretical underpinnings .....	35
Retail securitisations .....	36
VI. Calibration of the proposals and planned QIS .....	37



## Abbreviations

ABCP	Asset backed commercial paper
BCRA	Backstop concentration ratio approach
CRA	Credit ratings agency
ECAI	External credit assessment institution (also referred to as a CRA)
IAA	Internal assessment approach
IRB	Internal ratings-based approach
$K_{IRB}$	IRB capital requirements for the underlying pool of securitised assets
MSFA	Modified supervisory formula approach
QIS	Quantitative impact study
RBA	Ratings-based approach
SA	Standardised approach
SFA	Supervisory formula approach
SSFA	Simplified supervisory formula approach





# Revising the Basel Securitisation Framework

## Executive Summary

In its December 2010 publication of the Basel III framework, the Basel Committee on Banking Supervision noted that it was “conducting a more fundamental review of the securitisation framework, including its reliance on external ratings”.<sup>1</sup> Previously, in July 2009, the Committee introduced enhancements to the Basel II framework to address deficiencies identified during the financial crisis. These measures primarily addressed immediate concerns over resecuritisations, forming part of a set of reforms commonly referred to as “Basel 2.5”.<sup>2</sup> The Committee subsequently agreed to conduct a more fundamental review of the securitisation framework, including its reliance on external ratings. The performance of, and central role played by, securitisation exposures during the recent financial crisis was a key motivation for revisiting this area of the capital framework.

The Committee has now performed a broader review of the securitisation framework for regulatory capital requirements with objectives motivated by lessons learned during the financial crisis. This consultative paper reflects the Committee’s proposal to revise the Basel capital framework’s treatment of securitisation exposures. In developing this proposal, the Committee seeks to make capital requirements more prudent and risk sensitive, mitigate mechanistic reliance on external credit ratings, and reduce cliff effects.

The policy direction set out in this paper form part of the Committee’s broader agenda of reforming bank regulatory capital standards to address the lessons of the financial crisis. These initial proposals build on a series of important reforms that the Committee has already delivered through Basel III and set out the key approaches under consideration by the Committee to revise the securitisation framework.

While this paper lays out proposed revisions to the securitisation framework, it does not include proposed rules text that would effectuate these changes. The Committee is seeking industry feedback on some key elements of the proposed changes and will, in the coming months, conduct a quantitative impact study (QIS) of the proposals before deciding on a definitive way forward. The Committee will consider all comments received along with the results of the QIS before determining the appropriate next steps in the process of moving forward with revisions to the securitisation framework.

The major elements of the proposed revised framework include the following:

### Revised hierarchy (section II)

The Committee is considering two possible hierarchies that would include a revised set of approaches as well as, in some instances, new approaches to assigning capital. Both of these hierarchies would be significantly different from hierarchies currently employed in the securitisation framework. The Committee welcomes feedback on both hierarchies; in particular, with regard to their level of prudence and the incentives that are created under each hierarchy motivating the use of one approach over another (which will be largely determined by the relative calibration of approaches, as well as the flexibility (ie choices) embedded in each of the hierarchies). The Committee will carefully consider how the alternative hierarchies could be subject to gaming and open to regulatory arbitrage.

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<sup>1</sup> Available at: [www.bis.org/publ/bcbs189.htm](http://www.bis.org/publ/bcbs189.htm).

<sup>2</sup> Available at: [www.bis.org/publ/bcbs157.pdf](http://www.bis.org/publ/bcbs157.pdf)

The two hierarchies differ in aspects such as the specific approach to be applied for certain types of exposure, the order and scope of application of approaches, as well as the flexibility that is given to either jurisdictions or to banks to opt for one approach or the other. Yet, at the same time, both hierarchies have much in common. For example, under both hierarchies the standardised approach (SA) and internal ratings-based (IRB) approaches would be more closely aligned. For example, the SA and IRB approaches would use the same ratings-based approach. In addition, both approaches include a backstop approach, a risk-weight floor to guard against model risk, and caps to capital requirements to ensure consistency with the general non-securitisation framework. In addition, the new hierarchies would only apply to securitisation exposures that are not resecuritisations exposures.

The Committee believes that both hierarchies would further the objectives of making capital requirements more prudent and risk sensitive, mitigating mechanistic reliance on external credit ratings, and reducing cliff effects.

### **Revised, enhanced approaches (section III)**

The Committee is proposing enhancements to the current ratings-based approaches and the supervisory formula approach included in the Basel II securitisation framework. The proposal contains a revised Ratings-Based Approach (revised RBA) and a Modified Supervisory Formula Approach (MSFA), which are intended to create a more risk-sensitive and prudent calibration. To accomplish these objectives, underlying assumptions of the current framework have been revised to reflect lessons learned during the crisis. The enhanced approaches also incorporate additional risk drivers, such as maturity.

### **New approaches (section III)**

The proposed revisions to the securitisation framework include the introduction of new approaches, such as a simplified supervisory formula approach (SSFA) and different applications of the concentration ratio based approach, which was included in the Basel 2.5 enhancements to the trading book.<sup>3</sup> In particular, the proposal incorporates a backstop concentration ratio approach (BCRA) that would replace some of the special treatments for certain types of exposures available under the current framework. Further, the concentration ratio based approach would be the only possible treatment for all resecuritisation exposures.

### **Other proposed changes and clarifications (section IV)**

The proposed revisions would extend the 20% risk-weight floor in the SA securitisation framework to banks that use IRB approaches. Caps to capital requirements would also be revised for banks that use both the SA and IRB frameworks.

The Committee also proposes to address other shortcomings of the current securitisation framework. For example, it has observed that, over the past years, securitisations with early amortisation provisions in many cases did not achieve a significant transfer of risk because credit risk returned to the originator, either when the early amortisation provision was triggered or when the originator took steps to avoid the triggering of the early amortisation. Under the revised framework, such unjustified beneficial treatment for early amortisation provisions that was giving room for regulatory arbitrage would be removed.

Further, the Committee seeks to achieve better harmonisation in the implementation of the securitisation framework; for instance regarding the treatment of write-downs and purchase discounts, where it is proposed that the carrying value is used to calculate the risk-weighted assets.

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<sup>3</sup> See *Revisions to the Basel II market risk framework*, available at [www.bis.org/publ/bcbs158.pdf](http://www.bis.org/publ/bcbs158.pdf).

The Committee welcomes feedback on the proposed changes to the securitisation framework, in particular, absolute and relative calibration of the new level of capital charges, key underlying assumptions made during the calibration of these approaches (which will be discussed in a forthcoming technical note<sup>4</sup>), as well as on the requirements that would have to be met for applying each specific method. In addition, the Committee seeks input on whether (and which) additional adjustments should be made to more precisely capture the risk of certain types of underlying exposures (eg retail).

Comments on the proposals should be submitted by **Friday 15 March 2013** by e-mail to: [baselcommittee@bis.org](mailto:baselcommittee@bis.org). Alternatively, comments may be sent by post to: Secretariat of the Basel Committee on Banking Supervision, Bank for International Settlements, CH-4002 Basel, Switzerland. All comments may be published on the website of the Bank for International Settlements unless a comment contributor specifically requests confidential treatment.

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<sup>4</sup> The Committee will publish in the coming weeks a technical note describing in detail the calibration of the revised RBA as well as the derivation of the MSFA, with formulae and details on the technical assumptions.

## I. Motivations for revising the securitisation framework

### Performance of rated securitisations

The recent financial crisis revealed that external credit ratings often did not adequately reflect the risk of certain structured finance asset classes, such as mortgage backed securities, including but not limited to resecuritisation exposures. Moreover, the emphasis placed on credit ratings within the Basel securitisation framework resulted in rating agency errors flowing through to regulatory capital requirements.

During the crisis, credit rating agencies (CRAs) downgraded the ratings of many securitisation tranches, including senior tranches, highlighting deficiencies in credit rating agency models originally used to determine the ratings. In this regard, rating agency assumptions about expected losses in underlying exposures and about diversification benefits from credit enhancement often proved to be too optimistic, and many models severely underestimated the concentration of systemic risk through securitisation and resecuritisation. Recognising that their models had been inadequate, shortly after the crisis CRAs began to make fundamental changes to their methodologies.

Capital requirements assigned to highly-rated (eg AAA) senior and mezzanine securitisation exposures, which could be as low as 56 basis points, were too low, and this was illustrated by the poor performance of these securities. As rating agencies downgraded highly-rated securitisation exposures below investment grade, regulatory capital requirements increased rapidly and significantly due to the presence of cliff effects within the securitisation framework.

Market uncertainty and procyclical cliff effects<sup>5</sup> in capital requirements created incentives for banks in certain jurisdictions to sell securitisation exposures to maintain their capital ratios. This in turn further depressed values leading to mark-to-market losses in fair valued portfolios. Another important factor contributing to the observed mark-to-market losses was the significant deterioration in the credit quality of the underlying assets, which is not adequately captured in the existing RBA.

In 2010, the G20 Leaders called on the Committee to address adverse incentives arising from the use of CRA ratings in the regulatory capital framework.<sup>6</sup> To further underscore their resolve, the Financial Stability Board (FSB) drew up principles – endorsed by the G20 Leaders – to reduce reliance on CRA ratings in standards, laws and regulations.<sup>7</sup> As noted in the principles: *“Reducing reliance in this way will reduce the financial stability-threatening herding and cliff effects that currently arise from CRA rating thresholds being hard-wired into laws, regulations and market practices. The principles aim to catalyse a significant change in existing practices, to end mechanistic reliance by market participants and establish stronger internal credit risk assessment practices instead”*.

### Performance of unrated securitisations

The problems in securitisation markets were not limited to CRAs. Some banks' internal assessments performed equally poorly or even worse. In some cases banks imprudently managed the risk of securitised exposures. The capital framework did not help to provide prudent incentives to banks. In fact, besides the concerns with the role of credit ratings and

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<sup>5</sup> In this context, cliff effects refer to significant increases in capital requirements resulting from a change to a factor used to assign regulatory capital.

<sup>6</sup> Available at [www.g20.utoronto.ca/2010/to-communicue.html](http://www.g20.utoronto.ca/2010/to-communicue.html).

<sup>7</sup> Available at [www.financialstabilityboard.org/publications/r\\_101027.pdf](http://www.financialstabilityboard.org/publications/r_101027.pdf).

risk weight calibration under the RBA, the Committee was concerned with the imprudent risk weights and cliff effects of the Supervisory Formula Approach<sup>8</sup> (SFA) for unrated exposures.

During the crisis, following small changes in the quality of the underlying pool of securitised exposures, banks experienced severe cliff effects for unrated exposures under the SFA, similar to those observed under the RBA. These cliff effects were particularly pronounced for thin mezzanine tranches. Small changes in the credit quality of the underlying pool (and consequent change in the input  $K_{IRB}$  for the SFA) could quickly lead to increases in capital requirements from the 56 basis point floor to a 100% capital charge.

As noted earlier, these cliff effects in capital requirements increased incentives for banks to sell certain securitisation positions, which further exacerbated mark-to-market losses for banks. As with the RBA, the potential risks associated with mark-to-market losses arising from credit deterioration were not fully captured in the SFA capital requirements.<sup>9</sup>

### **Challenges to existing models of securitisation**

During the crisis, the behaviour of securitisation exposures often diverged from expectations based on the models underlying the calibration of the current SFA and RBA. Assumptions about the diversification benefits proved to be optimistic, and existing models severely underestimated the concentration of systemic risk inherent in securitisations. Furthermore, some models underpinning the current securitisation framework omitted what turned out to be important drivers of risk (eg maturity), and underplayed the role of heterogeneity of underlying assets and the thickness of mezzanine tranches in determining overall risk.

### **Shortcomings of the securitisation framework**

The Committee identified a number of shortcomings within the current securitisation framework, categorised broadly as follows:

- Mechanistic reliance on external ratings;
- Too low risk weights for highly-rated securitisation exposures;
- Too high risk weights for low-rated senior securitisation exposures; and
- Cliff-effects in capital requirements following deterioration in credit quality of the underlying pool.

#### **(i) *Mechanistic reliance on external ratings***

The current hierarchy of approaches in the securitisation framework places undue mechanistic reliance on external ratings. In particular, banks are required to apply the RBA for securitisation exposures when such exposures are externally rated (or when a rating can be inferred). Only when an external or inferred rating is not available, banks are allowed to use approaches based on internal ratings.

The Committee is working toward achieving compliance with the G20 and FSB objectives of reducing mechanistic reliance on external ratings, focusing first on the securitisation framework, where such reliance is predominant.

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<sup>8</sup> Under the SFA, tranches detaching below or up to  $K_{IRB}$  (ie the IRB capital requirements of the underlying exposures) effectively require dollar-for-dollar capital, and as credit enhancement increases by a small amount, capital requirements fall to a minimum of only 56 basis points.

<sup>9</sup> While the  $K_{IRB}$  input to the SFA depends on the maturity of the underlying assets for wholesale exposures, and therefore, maturity is indirectly taken into account in capital requirements, mark-to-market losses of securitised exposures depend to a large degree on the maturity of the tranche. However, neither the SFA nor the RBA acknowledge through capital charges the risk of changes in the market value of long tenor securitisation exposures resulting from credit deteriorations in the underlying portfolio.

**(ii) Too low risk weights for highly-rated securitisation exposures**

In light of the performance of securitisations during the financial crisis, the Committee is concerned that capital requirements for highly-rated securitisation exposures are too low. This concern applies particularly to resecuritisations.<sup>10</sup>

The low risk weights in the current securitisation framework reflect a number of issues with calibration. These include:

- The models used to calibrate the RBA assumed that asset pools backing securitisations typically warranted lower capital charges than similar assets held directly by a bank. This reflected an assumption that credit losses of securitised assets were less correlated with a presumed single global risk factor than similar assets underwritten and retained unsecuritised by the bank. A rationale for this assumption was that securitisation enabled banks to better diversify their portfolios. However, evidence from the recent crisis raised questions over these assumed diversification benefits.
- A failure to appropriately capture material risk factors, such as maturity and, within the RBA, the thickness of the tranche. The securitisation framework was calibrated without an explicit maturity adjustment; downplaying the fact that higher quality assets with longer maturities are more likely to be downgraded or to default after the first year than assets with shorter maturities. In its current form, the SFA looks only at the risk of default over a one-year horizon, ignoring the risk of a potential deterioration afterwards. Moreover, the current RBA does not take tranche thickness into account fully and does not distinguish between different types of tranches (ie downgraded senior thick tranches, where unexpected losses may be relatively small, and low-rated thin mezzanine tranches, where unexpected losses may be much higher).
- In the case of the SFA, the underlying framework implies that the risk of extreme losses within the pool is exceedingly small owing to modelling assumptions that, with hindsight, seem questionable (eg one-year default mode modelling approach together with a single, global risk factor) and failure to consider the model risk associated with securitisation transactions. The performance of senior tranches of many securitisations since 2007 has shown these issues to be material. In addition, the SFA leverages the potential undercapitalisation of the underlying portfolio as determined under the IRB approach.

**(iii) Too high risk weights for low-rated senior securitisation exposures**

The Committee found that risk weights for low-rated senior securitisation exposures were too high. Many senior securitisation exposures were downgraded during the crisis. While some of these exposures resulted in total loss to investors, most of these exposures have resulted in recovery of some principal.

**(iv) Cliff effects in capital requirements**

The problems identified above contributed to procyclical cliff effects of the securitisation framework, as evidenced by both the rapidity at which risk weights increased and the absolute differences in risk weights under the current securitisation framework. In hindsight, such cliff effects materialised in part because risk weights for highly-rated securitisation exposures were too low and external ratings proved to be less stable than originally thought.

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<sup>10</sup> Many highly-rated securitisation exposures experienced significant downgrades, mark-to-market losses, and defaults, with banks initially holding as little as 0.56% capital against them.

## Revising the securitisation framework

The concerns outlined above led the Committee to conduct a thorough review of the current securitisation framework. The Committee's review focused on the hierarchy of approaches as well as the risk-sensitivity and absolute capital requirements of the approaches themselves.<sup>11</sup>

The Committee in 2009 introduced enhancements to the securitisation framework. These, revisions, which were part of the Basel 2.5 reforms, addressed immediate concerns around the relative risk weights of securitisations and resecuritisations.

The Committee has now performed a broader review of the framework motivated by lessons learned during the financial crisis. It is committed to ensuring an appropriate risk-sensitive and prudent capitalisation of risks arising from securitisation and resecuritisation exposures, while working to find avenues for reducing cliff effects and mitigating mechanistic reliance on external credit ratings. In addition, in developing the proposal discussed here, the Committee strives to reduce (or not increase) the level of complexity of the framework where possible and to improve comparability of outputs under the various approaches.

## II. Considerations around the hierarchy of approaches

### Background: the hierarchy in the current securitisation framework

The current securitisation framework consists of two approaches with different hierarchies: a standardised approach (SA) used by banks that apply the SA credit risk framework for the asset class which comprises the underlying pool of securitised exposures, and an internal ratings-based (IRB) approach used by banks that apply an IRB approach to credit risk for the asset class which comprises the underlying pool of securitised exposures.

Under both the SA and IRB hierarchies, a bank must apply a ratings-based approach to securitisation exposures that are externally rated.<sup>12</sup> However, the RBA risk weights look-up table under the SA hierarchy is less granular than that under the IRB hierarchy.<sup>13</sup>

Under the SA hierarchy, if a securitisation exposure is not rated, there are a series of alternative treatments that can be used for: (i) the senior exposure in a securitisation; (ii) exposures that are in a second-loss position or better in asset backed commercial paper (ABCP) programmes and that meet certain requirements; and (iii) eligible liquidity facilities. A bank using the SA for securitisation exposures must apply a 1250% risk weight if it is unable to employ the RBA or any of the three alternative approaches listed above for a given securitisation exposure.<sup>14</sup>

Under the IRB hierarchy, for unrated securitisation exposures, a bank may use: (i) the SFA provided that it has sufficient information to calculate IRB capital requirements of the underlying exposures (ie  $K_{IRB}$ ); or, (ii) for an exposure to an ABCP program, the Internal Assessment Approach (IAA). If a bank using the IRB approach for securitisation is unable to

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<sup>11</sup> For specific issues that are not discussed in this proposal (eg credit enhancing I/Os arising from the securitisation transaction), the Committee is not proposing any changes and the existing treatment would remain in place.

<sup>12</sup> Under the IRB, this is also the case where an external rating can be inferred.

<sup>13</sup> For simplicity, this paper also refers to the look-up table in the SA securitisation framework as the RBA, although strictly speaking, in the Basel II framework, the latter nomenclature is only used for the ratings-based approach under the IRB securitisation framework.

<sup>14</sup> Basel II required deduction for such exposures, but Basel III changed this to a 1250% risk weight and no longer permits or requires deduction.

employ the RBA, SFA, or IAA for a given securitisation exposure, it must apply a 1250% risk weight to the securitisation exposure.<sup>15</sup>

### **Proposed revisions to the securitisation framework hierarchies**

The Committee is seeking comment on two possible hierarchies for the revised securitisation framework, Alternative A and Alternative B. The two alternative hierarchies would basically use the same approaches for assigning capital requirements; however, the application of these approaches would vary, depending on the specific exposure characteristics and other factors.

The two hierarchies have much in common:

- Under each of the two hierarchies, the SA and IRB approaches would be more closely aligned than under the current framework. For example under both the SA and IRB approaches, the revised RBA would be exactly the same.
- Under both hierarchies, supervisors could restrict or prohibit the use of the supervisory formula approaches (ie the MSFA and the SSFA) for certain structures or transactions; including tranches whose credit enhancement could be eroded for reasons other than portfolio losses, as well as tranches of portfolios with high internal correlation (eg portfolios with high exposure to single sectors or with high geographical concentration).
- Both hierarchies would make use of a backstop concentration ratio approach.
- Capital requirements of resecuritisation exposures (as defined in Basel 2.5) would be assigned via the concentration ratio approach. In other words, resecuritisation exposures would not be subject to either of the two hierarchies. The hierarchy discussion below is, therefore, limited in applicability to the treatment of securitisation exposures (both long-term and short-term exposures) but not resecuritisation exposures.

The Committee is of the view that each of the hierarchies would serve to further the objectives of making capital requirements more prudent and risk sensitive, mitigating mechanistic reliance on credit ratings, and reducing cliff effects.

Following is a review of operational requirements for the approaches under each hierarchy as well as a discussion of the two alternatives' strengths and weaknesses.

#### **(i) *Alternative A***

Under Alternative A, a modified version of the SFA – referred to as the Modified Supervisory Formula Approach (MSFA) – would be at the top of the hierarchy of approaches. A bank would be required to apply the MSFA provided that:

- (1) the use of the MSFA had not been restricted by the supervisor for the structure or transaction,
- (2) the bank had an IRB approach for the type of underlying exposures in the securitisation pool that has been approved by the supervisor, and
- (3) the bank had sufficient information to estimate IRB capital requirements for all the underlying assets of the securitised pool (ie  $K_{IRB}$ ) in compliance with IRB standards.

In case the first two conditions were met, the bank would need to explain and justify (eg based on data availability) to its supervisor any instances in which the bank did not calculate the MSFA for a securitisation exposure. Moreover, a bank that used the MSFA for a given

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<sup>15</sup> See footnote 144.



securitisation exposure would be expected to use the MSFA for as long as it held the exposure.

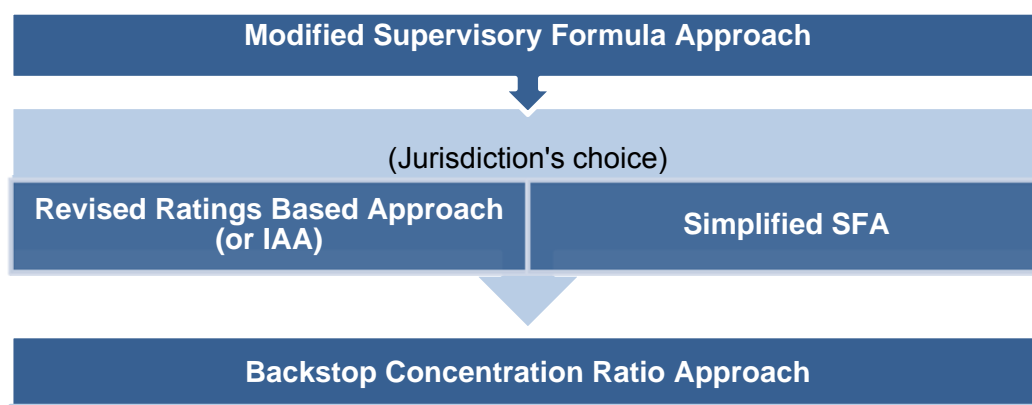
If a bank could not use the MSFA for a given securitisation exposure, it would then use either the revised RBA or the Simplified Supervisory Formula Approach (SSFA). The decision to apply either the revised RBA or the SSFA would be made by the local jurisdiction. Specifically, to avoid regulatory arbitrage, a supervisor would allow only one approach to be used within its jurisdiction – ie either the revised RBA (and IAA) or the SSFA.<sup>16</sup>

Similar to the current securitisation framework, an IRB bank would be permitted, under certain conditions, to use the IAA to calculate risk-based capital requirements for unrated securitisation exposures to an ABCP programme. The IAA would be permitted only in jurisdictions that chose to use the revised RBA. In addition, an IRB bank could only use the IAA if the bank were not able to use the MSFA. As under the current framework, the IAA would be available for certain securitisation exposures to ABCP programmes (eg liquidity facilities and credit enhancements) and provided that the ABCP, the bank, and the External Credit Assessment Institution (ECAI) met certain criteria (see Basel Accord paragraphs 619 to 622). The requirement of two external ratings under the revised RBA would not apply when using the IAA proxy rating. Instead, the current requirements for the IAA would be kept (eg it would be sufficient for only one ECAI to have *rated* the commercial paper; the bank should consider all publicly available rating methodologies in developing its internal assessment, etc).

A bank that could not use the approaches above to calculate capital requirements for a given securitisation exposure would use a fall-back approach, referred to as the Backstop Concentration Ratio Approach (BCRA). The BCRA is based on the concentration ratio included in the Basel 2.5 enhancements for securitisation exposures in the trading book. The BCRA would use as inputs the SA weighted-average risk weights for the underlying pool, increased by a factor of 2 for non-senior tranches to ensure that the approach is a conservative backstop.

Ultimately, if any of the above approaches could not be used, the banks would assign a 1250% risk weight to the securitisation exposure.

A graphic representation of Alternative A is provided below.<sup>17</sup>



<sup>16</sup> In order to use the revised RBA, the bank would need to have access to certain deal information and the securitisation exposure would need at least two eligible credit ratings. Under this Alternative A, revised RBA capital requirements would be calculated using a prescribed formula and a table.

<sup>17</sup> The levels of the hierarchy are intended to increase in conservatism as per the capital requirement generated by the specific approach to be applied in each level. For example, the MSFA has been calibrated to usually require less capital than the revised RBA.

### *Pros and cons*

Placing the MSFA at the top of the hierarchy would encourage banks to perform internal assessments of risk rather than mechanically relying on external ratings.

Nevertheless, the Committee is concerned that the jurisdictional choice between the revised RBA and the SSFA could result in substantially different capital requirements across jurisdictions for similar exposures, leading to concerns relating to a level playing field and, potentially creating opportunities for regulatory arbitrage.

Further, the Committee acknowledges the challenges associated with accurately modelling the risk associated with securitisation exposures, particularly non-senior tranches. As such, the Committee is concerned about the stability and reliability of supervisory formula approaches (especially, the MSFA) and revised RBA to set capital charges for securitisation exposures, particularly for thin, non-senior securitisation exposures. In the case of the MSFA, this is partly due to the fact that the MSFA does not account for certain deal-specific risk factors or structural features. In the case of the revised RBA, the crisis exposed that CRAs also face considerable modelling challenges when evaluating securitisation exposures.

#### **(ii) Alternative B**

Under this alternative hierarchy, a bank would be required to distinguish senior high-quality securitisation exposures from other securitisation exposures.<sup>18</sup>

The determination of “high-quality” would be based both, on available external information, such as external ratings, market data, and analyst’s reports; as well as the bank’s own assessment of credit risk, whereby the bank should demonstrate its understanding of the terms of the securitisation exposure and the risks of the underlying collateral. The bank would be required to demonstrate that the credit quality of the position is strong, with very low default risk, and is invulnerable to foreseeable events, implying that financial commitments would be met in a timely manner with a very high probability. To illustrate, high-quality would correspond to a long-term credit rating of “AAA” to “AA-”, or short-term credit rating of at least “A-1/P-1/F-1”.<sup>19</sup> Where this determination could not be made, the position would be assumed not to be high-quality.

For senior high-quality securitisation exposures, both the revised RBA and MSFA would sit at the top of the hierarchy in the sense that a bank could choose to apply either the revised RBA<sup>20</sup> or the MSFA (as well as the IAA for ABCP exposures),<sup>21</sup> provided their respective requirements were met (eg presence of two external ratings in order to use the revised RBA). In addition, if a bank were unable to use the MSFA, the SSFA could be used if permitted by

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<sup>18</sup> Throughout this paper, the determination of seniority follows the existing IRB securitisation framework (see Basel framework, paragraph 613)

<sup>19</sup> The notations used in this document do not express any preferences or determinations on ECAs by the Committee.

<sup>20</sup> Unlike Alternative A, the revised RBA risk weights under Alternative B would be read directly from a simple table. This is because the revised RBA can be simplified if it is applied only to senior tranches. If it can apply to other tranches, as under alternative A, the seniority and the thickness of non-senior tranches are important risk drivers in the determination of capital requirements, and as such, under Alternative A, the revised RBA risk weights are determined by a set of equations.

<sup>21</sup> More specifically, under Alternative B, the IAA could be used:

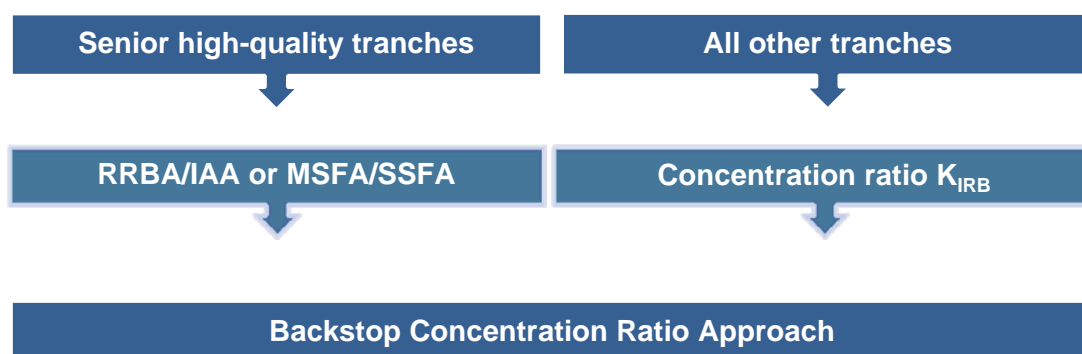
- For senior high-quality positions, as under Alternative A (ie the IAA proxy rating would be used as input into the revised RBA). For other positions, the IAA would not be available, and the concentration ratio (with the corresponding inputs depending on the type of exposure) should be used; and/or
- Where the IAA is in principle available for use (ie for securitisation exposures the bank extends to an ABCP programme and where all current requirements are met), as an instrument to demonstrate that a senior position is high-quality. The IAA could be used for this purpose even if not used to calculate capital requirements for such securitisation exposure.

supervisors. If a bank were unable to apply any of these approaches to a senior high-quality tranche, it would use the BCRA or ultimately, assign a 1250% risk weight to the exposure as described in Alternative A.

To limit the possibility of regulatory gaming (that arises from the possibility for banks to choose the applicable method for senior, high-quality securitisation exposures), banks would be expected to make their choice consistently over time. That is, the decision as to which approach to use would be based on an internal policy whose main intention is not to minimise capital requirements, and the decision for a specific position should not be changed over time without adequate justification to the bank’s supervisor.

For all other securitisation exposures, including non-senior tranches and senior tranches that are not high-quality, a bank would be required to use a concentration ratio approach based on  $K_{IRB}$ . If a bank did not have the information to calculate the concentration ratio based on  $K_{IRB}$ , it would use the BCRA.

The hierarchy under Alternative B can be graphically depicted as shown below.



### *Pros and cons*

Limiting use of the revised RBA, the MSFA and the SSFA to high-quality senior tranches is designed to mitigate model risk (which might be significant in the risk-sensitive approaches) and other shortcomings of the supervisory formula approaches noted above, especially shortcomings related to assigning capital requirements to mezzanine tranches. Requiring that the senior tranche is of high-quality also restricts the possibility of assigning too low capital charges to tranches having material default risk.

Under Alternative B, all jurisdictions would implement the same approach for securitisation exposures that are not high-quality or not senior, providing for fairly consistent international application. Further, capital requirements for exposures that were not both senior and high-quality would be entirely de-linked from external ratings.

This alternative presents certain challenges and drawbacks. In particular, in addition to the abovementioned concerns about gaming, judgments regarding whether the tranche qualifies as “high-quality” could be subjective, thus making global consistency more challenging. Moreover, if jurisdictions permit or require external credit ratings to be the main driver in the determination of whether a securitisation exposure were high-quality, in practice, the reduction in reliance on external ratings would not be as significant as intended. This potential effect is, however, difficult to quantify.

This hierarchy might also lead to cliff effects resulting from a change in approaches that would follow when a securitisation exposure no longer qualified as “high-quality”. In other words, capital requirements of a given senior securitisation exposure might increase not only because of a ratings downgrade or credit quality deterioration, but also due to a change in

the approach applied (eg from MSFA or revised RBA to the concentration ratio based on  $K_{IRB}$ ). However, these increases may be justified given the increase in risk of the position and the difficulty in accurately measuring its risk.

Finally, given that the concentration ratio based on  $K_{IRB}$  does not rely on any modelling assumption (other than those embedded in the IRB model for the underlying pool), it could be less risk-sensitive than the MSFA or revised RBA despite possible shortcomings of those approaches, and could result in overly conservative capital charges in some cases.

**Question 1:** *What additional costs and benefits of the two hierarchies should the Committee consider? Which hierarchy presents the greater benefits relative to its drawbacks? Which hierarchy would best address the shortcomings identified with the current framework, whilst meeting the Committee's objectives?*

**Question 2:** *As regards Alternative A, could both the revised RBA and the SSFA be accommodated without raising concerns about regulatory arbitrage or level playing field?*

**Question 3:** *As regards Alternative B, which methods could a bank use to conclude that a securitisation exposure is of high-quality? Would the use of these methods likely result in a capital charge consistently related to credit risk across banks and countries? Would Alternative B produce material cliff effects as exposures deteriorate below high-quality?*

**Question 4:** *Are there alternative hierarchies or revisions to the two proposed (or a combination of both) that the Committee should consider?*

### III. Proposed approaches in the securitisation framework

This section includes a detailed discussion of the proposed approaches contained within the hierarchies discussed above. Some of these approaches are enhanced versions of the approaches employed in the current framework.

#### Revised Ratings Based Approach (RBA)

##### ***Same approach under SA and IRB securitisation frameworks***

The Committee is proposing that the revised RBA replace the current SA and IRB RBA look-up tables for long-term ratings. By making use of one revised RBA for the SA and IRB approaches, the Committee seeks to reduce arbitrage opportunities across banks that use different regulatory capital regimes for securitisation exposures and to make the overall capital framework more consistent.

##### ***Requirements to use the revised RBA***

At least two eligible credit ratings would be needed in order for a bank to use the revised RBA for a securitisation exposure. Similar to the current framework, a bank would use the second best credit rating, regardless of how many eligible credit ratings were available. If there were fewer than two eligible credit ratings for a given securitisation exposure's tranche of interest, then a bank could not use the revised RBA for the exposure.

An eligible credit rating could be based on an external credit assessment for the relevant securitisation exposure or an inferred rating.<sup>22</sup> The operational requirements for the use of external credit assessments for treatment of securitisation exposures (see Basel framework, paragraph 565 as amended by Basel III), as well as the operational requirements for the use

<sup>22</sup> For example, this requirement could be met with an eligible rating to a tranche, and an inferred rating derived from another eligible rating to another tranche that ranks junior or *pari-passu*.

of inferred ratings established in the current IRB approach for securitisations (see Basel framework, paragraph 618) would be retained.

Requiring at least two ratings and using the lower of the two (or the second best in the case of more than two available ratings) helps to reduce over-reliance on a single rating agency's assessment of risk. In other words, it mitigates the risk of relying on a potentially flawed methodology or isolated errors embedded in the ratings of a single rating agency.

**Question 5:** *The Committee recognises that in some instances and in some jurisdictions, the requirement for two external ratings could be difficult to implement or could impose additional costs on banks. The Committee requests feedback on the relative merits of reducing idiosyncratic, rating agencies' modelling risk with the costs of using two ratings and/or whether exceptions to this treatment should be permitted.*

### **Additional risk drivers and formulation of the revised RBA**

During the calibration work performed by the Committee, each of the following inputs below were found to be important risk drivers to be considered in the revision of this approach:

- **Seniority of the tranche** (ie whether the securitisation exposure is a senior or subordinated tranche): While credit rating agencies consider tranche seniority when assigning ratings, analysis performed by the Committee suggests that under a reasonable characterisation of the rating process<sup>23</sup> the capital charge associated with a given tranche rating should, *ceteris paribus*, be higher for non-senior tranches than for senior tranches. The determination of seniority would follow the existing IRB securitisation framework (see Basel framework, paragraph 613).
- **Thickness of non-senior tranches:** Tranche thickness is essentially the size of the tranche relative to the entire securitisation transaction.<sup>24</sup> Under the current securitisation framework's ratings-based approaches, tranche thickness is not fully taken into account. While credit rating agencies consider tranche thickness, analysis performed by the Committee suggests that capital requirements for a given rating of a mezzanine tranche should differ significantly based on tranche thickness.
- **Maturity of the tranche:** Tranche maturity would be defined in line with the definition in the wholesale IRB framework (see Basel framework, paragraph 320). It would be based on the weighted-average maturity of the contractual cash flows of the tranche. Instead of calculating the weighted-average maturity a bank would be allowed to choose simply to use the final legal maturity. As under the wholesale IRB framework, tranche maturity would have a 5-year cap and a 1-year floor. Further clarity on the definition of maturity is provided in section IV.

Within the current RBA in the IRB securitisation framework, non-granular pools (ie pools with a small number of underlying loans) attract a higher capital charge than granular pools. However, academic research and analysis conducted by the Committee suggest, for a given tranche's external rating, granularity effects may not be a major risk driver and, indeed, may have a directional impact opposite of that in the current RBA. For this reason, the revised RBA would not use granularity as a determinant of capital requirements.

Considering the risk drivers that the Committee has found to be relevant, the revised RBA would take different forms under each of the alternative hierarchies. More specifically, while the revised RBA in alternative hierarchy A is described by two equations, it can be simplified

<sup>23</sup> For these purposes, the rating process has been characterised by securitisation exposures with a given rating having the same expected loss rate as a similarly rated corporate bond.

<sup>24</sup> For example, a securitisation of a \$100 pool of loans might be tranching into a \$1 first-loss position, a \$2 mezzanine position, and a \$97 senior tranche. The \$2 mezzanine position would have a tranche thickness of 2%.

to just one in alternative B. This is because in alternative B the revised RBA would only apply to senior high-quality tranches (ie and as such, seniority and thickness of the tranche does not need to be explicitly incorporated in the equations). The description below indicates how this approach is to be used under both alternatives.

(a) *Revised RBA in alternative hierarchy A*

The Committee has developed a set of equations that consider the inputs listed above to calculate capital requirements for a securitisation exposure. While the formulation of the revised RBA is not as simple as the current RBA, the additional inputs that must be supplied by a bank should be readily available.<sup>25</sup>

The capital requirement ( $K$ ) per unit of exposure (eg per Euro of exposure) would be calculated as follows:

- For a **senior tranche**:<sup>26</sup>

$$K = \min [1, \text{Alpha} (1 + \text{Beta} (M - 1))].$$

- For a **non-senior tranche**,  $K$  would be greater of:
  - (a) the charge for a senior tranche with the same rating and maturity, and
  - (b) the following amount:

$$K = \min \left[ 1, \min \left[ \text{Alpha}0, \frac{a}{1 + bT} \right] \cdot \left( 1 + \left( \frac{c}{1 + dT} \right) (M - 1) \right) \right]$$

where the parameters  $T$  and  $M$  equals the tranche's thickness and its maturity. The parameters  $\text{Alpha}$ ,  $\text{Alpha}0$ ,  $\text{Beta}$ ,  $a$ ,  $b$ ,  $c$ , and  $d$  depend on ratings (see table 1 below). For positions rated below "CCC-", a 1250% risk weight would be applied.

<sup>25</sup> Moreover, requiring banks to know these inputs is consistent with the Basel 2.5 due diligence requirements under the securitisation framework adopted by the BCBS in July 2009.

<sup>26</sup> The risk-weighted assets generated through the use of the revised RBA are calculated by multiplying the capital requirement by 12.5.

Table 1  
Revised RBA Parameters

Rating	Alpha	Alpha0	a	b	Beta	c	d
AAA	0.0145	0.0145	0.0221	0.5321	0.5499	2.1670	4.3362
AA+	0.0259	0.0259	0.0397	0.5321	0.3258	1.5109	4.3362
AA	0.0409	0.0535	0.0580	0.5321	0.2246	0.8927	4.3362
AA-	0.0487	0.0822	0.0921	0.9527	0.2013	0.5861	4.3362
A+	0.0568	0.1224	0.1408	1.4910	0.1882	0.3835	4.3362
A	0.0650	0.1762	0.2060	2.1419	0.1828	0.2419	3.8442
A-	0.0748	0.2610	0.3089	3.2605	0.1828	0.1165	0.7483
BBB+	0.0845	0.3664	0.4312	4.0123	0.1828	0.0632	0.0000
BBB	0.0940	0.4871	0.5419	4.2225	0.1828	0.0404	0.0000
BBB-	0.1085	0.6841	0.6804	4.2225	0.1828	0.0382	0.0000
BB+	0.1225	0.8463	0.8290	4.2225	0.1828	0.0382	0.0000
BB	0.1358	0.9448	1.0432	4.6740	0.1828	0.0382	0.0000
BB-	0.1679	0.9842	1.2406	5.0846	0.1828	0.0382	0.0000
B+	0.2094	0.9972	1.4151	5.1545	0.1724	0.0330	0.0000
B	0.2564	0.9997	1.6164	5.1545	0.1281	0.0085	0.0000
B-	0.3109	1.0000	1.6758	5.1545	0.0730	0.0000	0.0000
CCC+/CCC/CCC-	0.3778	1.0000	1.7786	5.1545	0.0509	0.0000	0.0000

Table 2 shows risk weights that would be generated using the revised RBA for various values of thickness and maturity.

Table 2  
Illustrative Revised RBA risk weights under hierarchy A (%)

Rating	Senior tranche		Non-senior tranche							
			Thin		Thickness = 0.10		Thickness = 0.25		Thickness = 0.50	
	Maturity (years)		Maturity (years)		Maturity (years)		Maturity (years)		Maturity (years)	
	1y	5y	1y	5y	1y	5y	1y	5y	1y	5y
AAA	20	58	20	175	20	128	20	94	20	68
AA+	32	75	32	228	32	169	32	126	32	94
AA	51	97	67	306	67	233	64	174	57	122
AA-	61	110	103	344	103	271	93	198	78	136
A+	71	124	153	388	153	317	128	223	101	150
A	81	141	220	433	212	360	168	250	124	166
A-	94	162	326	478	291	417	213	296	147	197
BBB+	106	183	458	574	385	482	269	337	179	225
BBB	118	203	609	707	476	553	330	383	218	253
BBB-	136	235	851	980	598	689	414	477	273	315
BB+	153	265	1036	1195	729	840	504	581	333	384
BB	170	294	1181	1250	889	1024	601	693	391	450
BB-	210	363	1230	1250	1028	1185	683	787	438	505
B+	262	442	1247	1250	1167	1250	773	875	494	560
B	321	485	1250	1250	1250	1250	883	913	565	584
B-	389	502	1250	1250	1250	1250	915	915	586	586
CCC [+/-]	472	568	1250	1250	1250	1250	971	971	621	621
Below CCC-	1250									



Table 2bis  
**Current RBA risk weights (%)**  
*(for comparison purposes)*

Rating	Senior tranche		Non-senior tranche							
			Thin		Thickness = 0.10		Thickness = 0.25		Thickness = 0.50	
	Maturity (years)		Maturity (years)		Maturity (years)		Maturity (years)		Maturity (years)	
	1y	5y	1y	5y	1y	5y	1y	5y	1y	5y
AAA	7	7	12	12	12	12	12	12	12	12
AA+	8	8	15	15	15	15	15	15	15	15
AA	8	8	15	15	15	15	15	15	15	15
AA-	8	8	15	15	15	15	15	15	15	15
A+	10	10	18	18	18	18	18	18	18	18
A	12	12	20	20	20	20	20	20	20	20
A-	20	20	35	35	35	35	35	35	35	35
BBB+	35	35	50	50	50	50	50	50	50	50
BBB	60	60	75	75	75	75	75	75	75	75
BBB-	100	100	100	100	100	100	100	100	100	100
BB+	250	250	250	250	250	250	250	250	250	250
BB	425	425	425	425	425	425	425	425	425	425
BB-	650	650	650	650	650	650	650	650	650	650
B+	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250
B	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250
B-	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250
CCC [+ / -]	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250
Below CCC-	1250									

As shown in the tables above, under Alternative A the revised RBA extends down to credit ratings of “CCC-”. It is only after “CCC-” that a 1250% risk weight is required. This does not preclude that a 1250% risk weight can still result from application of the equations and tables for credit ratings above “CCC-”, particularly for thin mezzanine tranches. In contrast, under the current RBA, a bank must assign a 1250% risk weight to an exposure that is rated below “BB-” or below investment grade (ie “BBB-”) for retained securitisation exposures held by an originating bank in the standardised approach (see Basel Accord paragraph 570). By reducing the credit rating threshold at which a 1250% risk weight is automatically required to below “CCC-” under the revised RBA, the Committee expects to reduce cliff effects, particularly for senior tranches, where the proposed risk weights would increase more gradually than under the current standards. Calibrating the revised RBA to assign risk-weights of less than 1250% for senior securitisation exposures rated “CCC-” or better also recognises that such exposures typically recover some principal payments.

(b) *Revised RBA in alternative hierarchy B*

In Alternative B, the revised RBA is a simple risk-weight table dependent on rating and maturity. For intra-year maturities, simple linear interpolation is used. For example a 2.5 year AAA exposure would have a 31% risk weight.

Table 3  
Revised RBA risk weights for long-term ratings under hierarchy B

(%)	Maturity (years)				
Rating	1y	2y	3y	4y	5y
AAA	20	26	36	46	58
AA+	32	41	52	63	75
AA	51	62	73	85	97
AA-	61	73	85	97	110

***Risk-weights for short-term credit exposures***

Given that the vast majority of short-term exposures involve asset-backed commercial paper, which usually is considered a senior exposure and is almost universally rated in the highest rating category, risk weights using the look-up tables for short-term credit ratings typically are 20% and 7% in the current SA and IRB securitisation frameworks, respectively.

The Committee believes that this is an area where complexity can be reduced without having any material effect on risk sensitivity. More specifically, the Committee proposes to have only one look-up risk-weight table, retaining the short-term RBA look-up table used in the current SA for securitisation and expanding its application to banks that use IRB for the type of underlying exposures for a given securitisation exposure.

The proposed risk weights for securitisation exposures with short-term ratings are shown in table 4, and are consistent with the 20% risk-weight floor discussed below (see section IV).

Table 4  
Risk weights for the short-term rating category (%)

External Credit Assessment	A-1/P-1	A-2/P-2	A-3/P-3	All other ratings
Risk weight	20	50	100	1250

As with the use of credit ratings under the revised RBA for long-term credit ratings, at least two short-term credit ratings (external or inferred) would be needed in order for a bank to use table 4.

***Adjustments for high-risk underlying pools:***

As discussed in more detail below in section V, the revised RBA has been calibrated assuming that for tranche ratings comparable to BB or better, the underlying pool quality backing a securitisation transaction is roughly equivalent to a pool of “B” rated assets. For lower rated tranches, the underlying pool is assumed to be 3 rating notches worse than the tranche rating. As also noted in more detail in section V below, analysis has shown that thick tranche exposures to pools of low credit quality tend to require greater amounts of capital for a given external rating. Given these observations, it is possible that the resulting capital

treatment may be inadequate in certain circumstances when securities are backed by underlying pool quality of more than three notches below. For example, a bank holding a “BB” rated securitisation exposure backed by “CCC” underlying exposures might hold less capital under the revised RBA than would be appropriate. For this reason, the Committee is proposing to include a provision within the Pillar 1 securitisation framework that would give explicit discretion for national supervisors to adjust upwards capital requirements for securitisation exposures backed by high-risk pools.

**Question 6:** *Is the RBA appropriately calibrated and formulated? Should other risk drivers be incorporated?*

### **Modified Supervisory Formula Approach (MSFA)**

The existing SFA does not fully reflect the possibility of mark-to-market losses to tranche exposures resulting from potential future credit deterioration in the underlying pool. The SFA is based on a one-year default mode model, whereas maturity adjustments within the IRB wholesale framework, in contrast, also incorporate into capital requirements the potential for downward migrations short of default over the one-year capital horizon. The Committee is proposing to amend the SFA to incorporate a maturity effect at the tranche level. This change is intended to make the MSFA more consistent with both the IRB framework and the revised RBA approach, which also incorporate a maturity adjustment.

Under the current SFA, a bank needs to be able to calculate the IRB capital requirements for the underlying pool ( $K_{IRB}$ ). Similarly, under the MSFA, the bank must have: (i) an IRB model for the type of underlying exposures in the securitisation pool that has been approved by supervisors; and (ii) sufficient information to estimate IRB capital requirements for all and each of the underlying assets of the securitised pool.

The Committee is also proposing to restrict the use of the MSFA to instances where a bank can develop IRB parameter estimates for all of the underlying exposures. In contrast, the current standards state that if the bank is using the IRB approach for some exposures and the standardised approach for other exposures in the underlying pool, it should generally use the approach corresponding to the predominant share of exposures within the pool (paragraph 607 of the current framework). This change might restrict the use of the MSFA, but unlike the current hierarchy, the hierarchies under consideration provide additional methods, including a backstop approach described below, before a 1250% risk weight applies.

**Question 7:** *Is it appropriate to require that in order for the MSFA to be used the IRB approach should be applied for all underlying assets?*

The capital charge under the MSFA would depend on the credit enhancement level and the thickness of the tranche (reflected in the parameters  $A$  and  $D$ ); the tranche maturity ( $M$ ); and the asset value correlations ( $AVCs$ ),<sup>27</sup> probabilities of default ( $PDs$ ), and losses given default ( $LGDs$ ) of the underlying exposures. The revised formulation also includes a 1250% risk weight for securitisation exposures below  $K_{IRB}$ , consistent with the current SFA.

The **inputs** needed by a bank to use the MSFA will be:

- Loan-by-loan IRB estimates of the underlying assets.<sup>28</sup>

<sup>27</sup> For a given underlying exposure the same correlation value has to be used as under the IRB wholesale framework.

<sup>28</sup> As in the current framework, the top-down approach to estimate internal PD and/or LGDs would still be allowed for purchased receivables.

- Maturity of the tranche ( $M$ ), calculated in line with the definition used in the wholesale IRB framework, as in the revised RBA (see section IV for a more complete description of the definition of maturity).
- Attachment point of the tranche ( $A$ ). Specifically,  $A$  would be the attachment point for the tranche that contains the securitisation exposure and would represent the percentage threshold at which credit losses would first be allocated to the exposure. This input would be the ratio of the Euro amount of the securitisation exposures that provide full credit enhancement to the tranche that contained the securitisation exposure of the bank to the current Euro amount of all underlying exposures.
- Detachment point of the tranche ( $D$ ). Specifically,  $D$  would be the detachment point for the tranche that contained the securitisation exposure and would represent the percentage threshold at which credit losses of principal allocated to the securitisation exposure would result in a total loss of principal. This input, which is a decimal value between zero and one, would equal the value of  $A$  plus the ratio of the Euro amount of the exposures and all *pari passu* exposures to the Euro amount of all underlying exposures.<sup>29</sup>

Capital requirements generated by the MSFA would be significantly higher for certain securitisation exposures compared with those generated by the SFA due to the incorporation of the maturity adjustment and the calibration of the supervisory add-ons of “tau” ( $\tau$ ) and “omega” ( $\omega$ ). These supervisory parameters have been adjusted downward (from 1000 to 100, and from 20 to 10, respectively) in order to make capital requirements more prudent and reduce the cliff effects that occur for securitisation exposures from tranches with attachment points just beyond  $K_{IRB}$  (see section V for further details).

The capital requirement<sup>30</sup> per unit of pool notional ( $K$ ) is calculated as:

$$K = \max\{0.016 \cdot (D - A); S[D] - S[A]\}.$$

The Modified Supervisory Formula is given by the following:

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

where

$$K[x] = (1 - h) \cdot ((1 - \text{Beta}(x; a, b)) \cdot x + \text{Beta}[x; a + 1, b] \cdot C);$$

$$d = 1 - (1 - h) \cdot (1 - \text{Beta}[K_{IRB}; a, b]); \quad a = g \cdot C; \quad b = g \cdot (1 - C); \quad g = C \cdot \frac{1 - C}{F} - 1$$

Parameters are calculated in the following manner:

**Step 1:** For each asset or retail segment,  $i$ , calculate  $v_i$  and  $c_i$  using that asset’s PD, LGD, and AVC.

$$v_i = 0.09 \cdot LGD_i^2 \cdot M \cdot AVC_i \cdot w_i \cdot (1 - w_i)$$

$$c_i = LGD_i \cdot w_i$$

$$w_i = N \left[ s_i + (0.56 + 0.074s_i - 0.34AVC_i^{0.3}) \cdot (M - 1)^{0.7} \right]$$

<sup>29</sup> Under Alternative B,  $D$  would be set equal to 1 in the formulae below.

<sup>30</sup> As in the IRB approaches, risk-weighted assets generated through the use of the MSFA are calculated by multiplying the capital charge by 12.5.

$$s_i = \frac{N^{-1}[PD1_i] + 3.09\sqrt{AVC_i}}{\sqrt{1 - AVC_i}}$$

**Step 2:** Construct the pool-level parameters  $C$  and  $F$ .<sup>31</sup>

$$C = \left(\frac{1}{1-h}\right) \cdot \sum_i \theta_i c_i, \text{ where } \theta_i = \frac{EAD_i}{\sum_j EAD_j}$$

$$V = \left(\sum_i \theta_i \cdot \sqrt{v_i}\right)^2 + \sum_i \theta_i^2 \cdot [w_i \cdot LGD_i \cdot (LGD_i - w_i \cdot LGD_i) + 0.25 \cdot w_i \cdot LGD_i \cdot (1 - LGD_i)]$$

$$F = \left(\frac{V - C^2 h(1-h)}{1-h}\right) + \left(\frac{((1-h)C - (1-h)^2 C^2 - V)}{(1-h)\tau}\right)$$

$$h = \left(1 - \frac{\sum_i \theta_i c_i}{LGD}\right)^{N^*}$$

$$N^* = \frac{N}{(1 + 0.0079M\sqrt{N})^2}$$

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

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

In these expressions,  $Beta[L; a, b]$  denotes the cumulative beta distribution with parameters  $a$  and  $b$  evaluated at  $L$ ; and  $N[z]$  and  $N^{-1}[y]$  denote the cumulative distribution function and inverse cumulative distribution function for the standard normal probability distribution (both employed within the IRB capital functions). The parameters  $\tau$  and  $\omega$  are proposed to be set at 100 and 10, respectively, instead of current levels of 1000 and 20.

The MSFA would be available to banks applying the advanced IRB and foundation IRB. Given that the MSFA requires loan-level IRB information, the Committee is considering whether it is appropriate to allow banks using the foundation IRB approach to make use of the MSFA since the banks do not estimate LGDs under this approach. While the supervisory LGD assignments included within the foundation IRB should generally ensure that the MSFA generates prudent capital requirements, the Committee intends to examine this issue more closely as part of its QIS analysis.

**Question 8:** *Is the MSFA appropriately calibrated and formulated? Does it incorporate the appropriate risk drivers? Is the calibration of tau and omega appropriate? If not, what evidence can respondents provide to support an alternative calibration?*

**Question 9:** *Is it prudent to allow the use of the MSFA by banks making use of the foundation IRB approach (ie not calculating internal estimates of the underlying loans' LGD)?*

<sup>31</sup> The  $h$  parameter and the second line in the equation for  $V$  represent adjustments for limited pool granularity. As in the current SFA, for a pool containing only retail exposures, a bank would generally be permitted to simply set these terms to zero.

## Simplified Supervisory Formula Approach (SSFA)

In recognition that the legal framework in certain jurisdictions prohibits use of or reference to credit ratings in regulations and that the availability of credit ratings for structured products originated in some jurisdictions is limited, the Committee is proposing to introduce in the framework the Simplified Supervisory Formula Approach (SSFA).

The SSFA is a formula that starts with the SA capital requirements for all exposures underlying a securitisation and then assigns risk weights to specific tranches based on the subordination level of the tranche within the securitisation structure. Similar to the other approaches, the SSFA assigns relatively higher capital requirements to the riskiest junior tranches of a securitisation that are the first to absorb losses, and relatively lower requirements to the most senior exposures.

The SSFA methodology is based on the weighted-average capital requirement of the underlying exposures (referred to as  $K_{SA}$ ), calculated using the capital requirements determined under the SA for credit risk.  $K_{SA}$  is expressed as a decimal value between zero and 1 (ie assets with an average risk weight of 100% would have a  $K_{SA}$  equal to 0.08). In addition, the SSFA also uses the attachment and detachment points of the particular securitisation position, and the amount of “delinquent exposures”, as defined below, within the underlying exposures of the securitisation. The relative seniority of the exposure and all funded enhancements are recognised as part of the SSFA calculation.

The SSFA as proposed would apply a 1250% risk weight to securitisation exposures that absorb losses up to the amount of capital that would be required for the underlying exposures under the SA had those exposures been held directly by the bank.<sup>32</sup> All securitisation exposures would generally be subject to a 20% supervisory risk-weight floor, similar to the proposed floor in the MSFA and the revised RBA.

To enhance the risk sensitivity of the SSFA,  $K_{SA}$  would be adjusted based on delinquencies of the underlying assets of the securitisation structure ( $W$ ). Specifically, the parameter  $K_{SA}$  would be modified and the resulting adjusted parameter labelled  $K_A$ . The formula for calculating  $K_A$  would be as follows:

$$K_A = (1 - W) \cdot K_{SA} + (W) \cdot 0.5$$

The variable  $W$  would equal the ratio of the sum of any underlying exposures within the securitised pool that were “delinquent” to the ending balance. “Delinquent exposures” would be defined to mean exposures that were 90 days or more past due, subject to a bankruptcy or insolvency proceeding, in the process of foreclosure, held as real estate owned, had contractually deferred interest payments for 90 days or more, or were in default.

The entire specification of the SSFA would be as follows:

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

$K_{SSFA}$  would be the capital requirement per unit of the securitisation exposure and would be a function of three variables, labelled  $a$ ,  $u$ , and  $l$ . The constant  $e$  is the base of the natural logarithms (which equals 2.71828). The variables  $a$ ,  $u$ , and  $l$  would have the following definitions:

$$a = -(1 / (p * K_A))$$

$$u = D - K_A$$

<sup>32</sup> Assuming zero delinquencies.

$$I = \max (A - K_A; 0)$$

As in the MSFA, the values of  $A$  and  $D$  denote, respectively, the attachment and detachment points of the tranche. The definitions of  $A$  and  $D$  would be the same as noted above in the context of the MSFA. Unlike the revised RBA and the MSFA, the current SSFA calibration would not incorporate maturity adjustments. Instead, the Committee proposes to use a supervisory adjustment factor, or the constant term  $p$ , to determine the overall level of capital required for all tranches of a securitisation under the SSFA in comparison to  $K_A$ . As a result, a higher value for  $p$  would increase the amount of capital required under the SSFA for tranches with detachment points beyond the level of  $K_A$ . The tranching of credit risk serves to reduce, but not eliminate credit risk for more senior securitisation exposures. The supervisory adjustment factor in the SSFA is intended to reduce cliff effects and apply conservatism for tranches with detachment points beyond  $K_A$ . In addition, the supervisory adjustment factor can be seen to account for imprecision or uncertainty associated with using standardised approach risk weights for underlying exposures in calculating  $K_{SA}$ .

The risk weight<sup>33</sup> would be set as follows:

- When  $D$  for a securitisation exposure is less than or equal to  $K_A$ , the exposure must be assigned a risk weight of 1250%.
- When  $A$  for a securitisation exposure is greater than or equal to  $K_A$ , the risk weight of the exposure, expressed as a percentage, would equal  $K_{SSFA}$  times 12.5.
- When  $A$  is less than  $K_A$  and  $D$  is greater than  $K_A$ , the applicable risk weight is a weighted average of 1250% and 12.5 times  $K_{SSFA}$  according to the following formula:

$$RW = \left[ \left( \frac{K_A - A}{D - A} \right) \cdot 12.5 \right] + \left[ \left( \frac{D - K_A}{D - A} \right) \cdot 12.5 \cdot K_{SSFA} \right]$$

The proposed calibration of the SSFA is intended to produce capital requirements that, in a broad sense, are roughly comparable and slightly higher than those generated by the MSFA. To accomplish this, the Committee is proposing to calibrate the SSFA more conservatively than the SSFA introduced in the United States, by setting  $p$  equal to 1.5.

The Committee will use the QIS to analyse the performance of representative portfolios under the SSFA using various values of  $p$ , or calibrating the term  $p$  as a function of maturity to incorporate a maturity adjustment in the SSFA. After reviewing comments and the results of the planned QIS exercise, the Committee will closely examine this issue to try to ensure that, while relying on different input parameters, capital requirements under the revised RBA and the SSFA are broadly aligned.

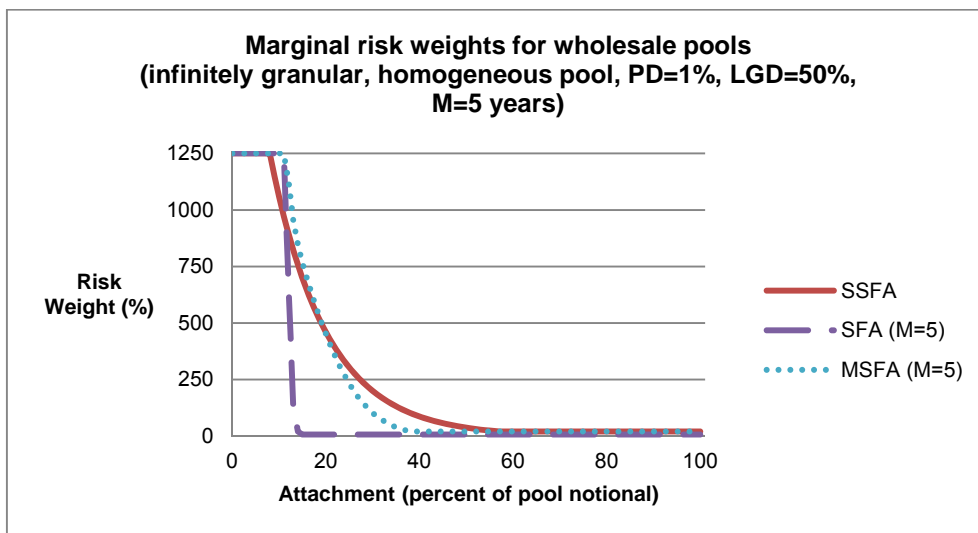
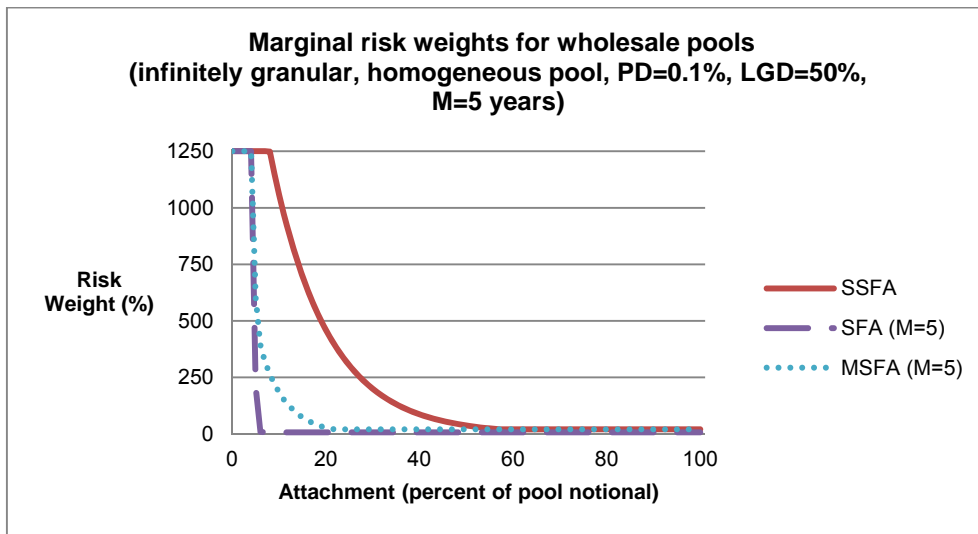
**Question 10:** *Is the SSFA (particularly the constant term  $p$ ) appropriately calibrated? Please provide justification and evidence, to the extent possible, for alternative appropriate levels of calibration?*

**Question 11:** *Is the SSFA properly formulated or should other risk drivers, such as maturity, be incorporated?*

<sup>33</sup> The risk weight for a unit of exposure is calculated by multiplying capital charge given by  $K_{SSFA}$  by 12.5.

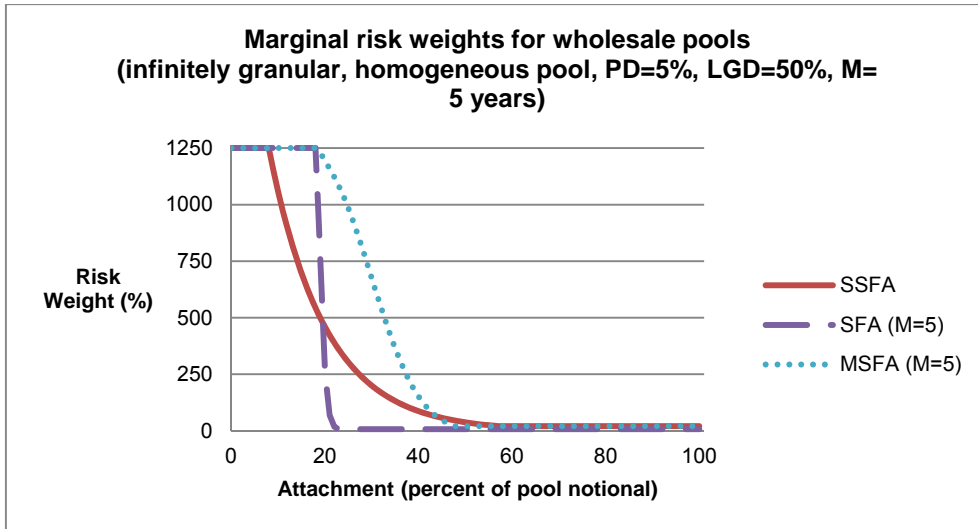
For comparison purposes, the set of charts below shows capital charges under the current SFA, SSFA<sup>34</sup> and MSFA.

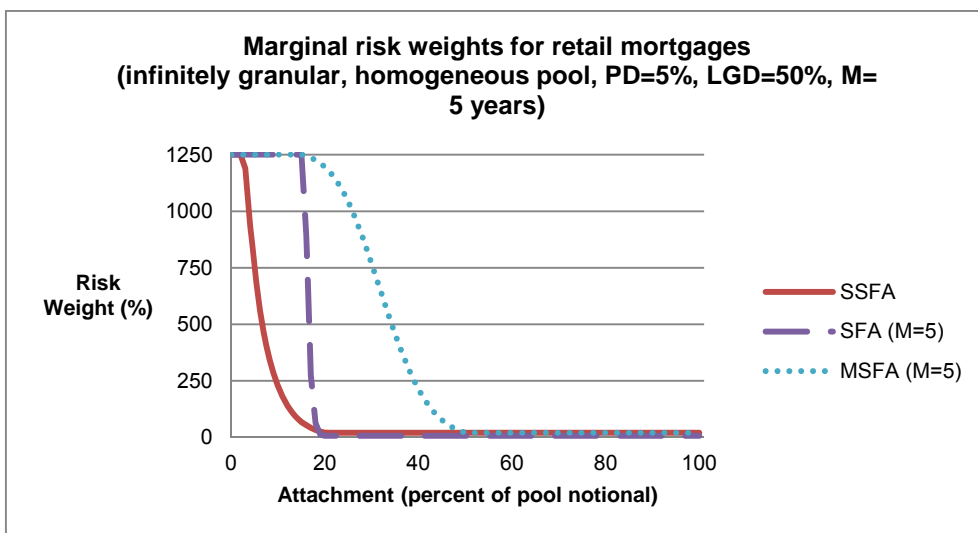
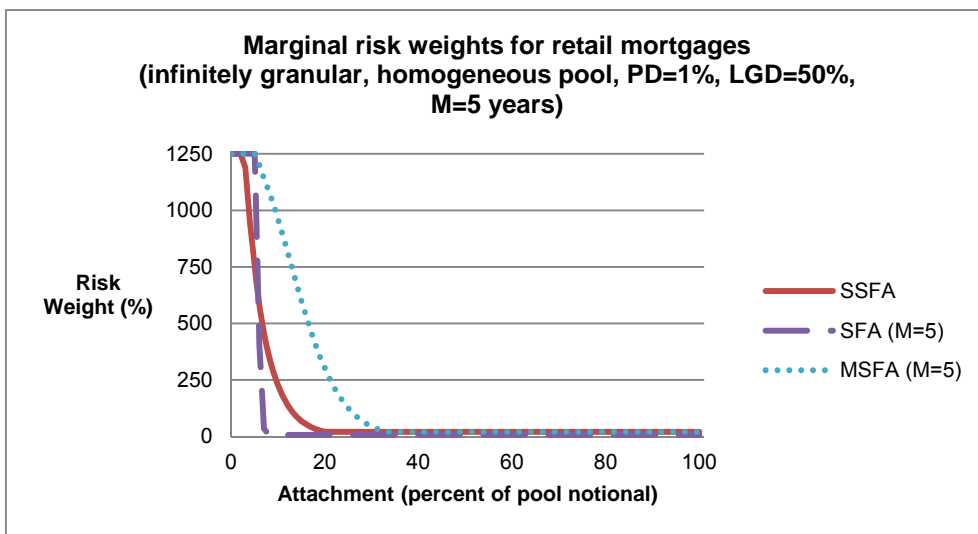
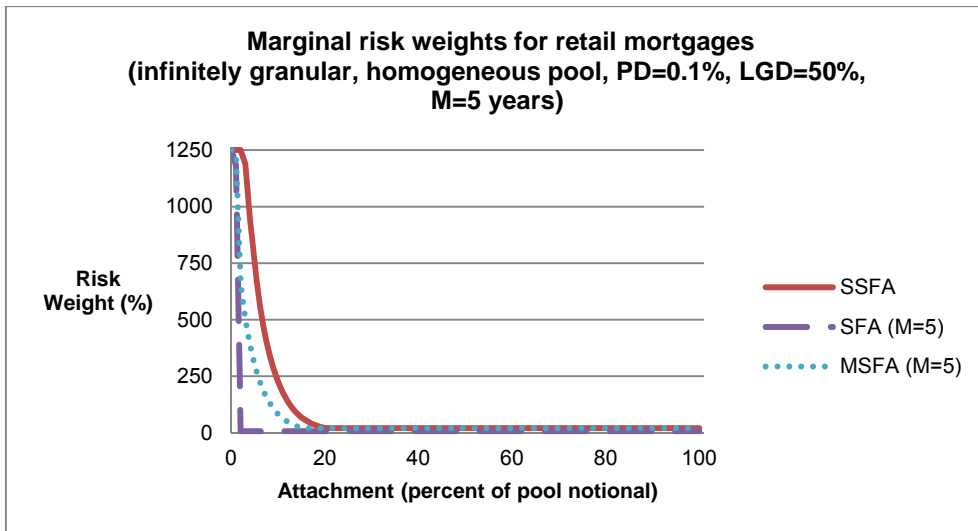
**Chart: Comparison of capital charges under the SFA, SSFA and MSFA**



<sup>34</sup> In these charts SSFA curves are calculated assuming zero delinquencies ( $W = 0$ ). Since PD is not an input of SSFA, SSFA risk weights curves in the charts are independent of the PD level. In practice, however, a higher PD could translate in a higher number of delinquencies, and therefore, higher risk weights under the SSFA.







## Concentration Ratio Based Approaches

The Committee proposes to broaden the potential applicability under the revised securitisation framework of the concentration ratio (CR) approach introduced by Basel 2.5 for securitisation exposures in the trading book. Depending on the types of exposures, a concentration ratio would be calculated using different inputs and is discussed below.

### (i) Concentration Ratio based on $K_{IRB}$ ( $CR_{K_{IRB}}$ )

Under alternative hierarchy B, banks that could calculate IRB capital requirements for the underlying exposures, for exposures other than senior, high-quality would make use of a concentration ratio based on  $K_{IRB}$ . The formula for  $CR_{K_{IRB}}$  can be written as:

$$\text{Min} \left( 1250\%; 12.5 \cdot \left( \frac{K_{IRB}}{D} \right) \right)$$

As with the MSFA, the  $CR_{K_{IRB}}$  would only be permitted to be used if the IRB parameters could be estimated for all of the underlying exposures.

### (ii) Backstop Concentration Ratio Approach (BCRA)

Under both hierarchies under consideration, the BCRA would be used as a fall-back approach before requiring a bank to assign a 1250% risk weight to a securitisation exposure.

For the purposes of the BCRA, banks would use as inputs the capital charges applicable to the underlying pool of exposures using risk weights under the SA for credit risk. The BCRA is relatively simple and, for positions where the standardised risk weights capture the full risk of the underlying exposures, can be expected to generate a conservative charge by virtue of its providing no recognition of credit enhancements benefitting the tranche.

To calculate capital requirements for a securitisation exposure using the BCRA, a bank would need to know the detachment point of the tranche of interest ( $D$ ) – which would be measured in the same manner as under the MSFA and SSFA discussed above – and the underlying pool's capital charge per unit of notional exposure ( $K_{SA}$ ) under the SA. The BCRA calculation will also depend on whether the securitisation exposure is a senior or non-senior exposure.

The BCRA risk-weight would be calculated using the following formula:

$$\text{Min} \left( 1250\%; F \cdot 12.5 \cdot \left( \frac{K_{SA}}{D} \right) \right)$$

where  $F = 1$  for senior securitisation exposures; and  $F = 2$  for non-senior securitisation exposures, subject to the exceptions noted later in this paper for resecuritisations.

The Committee is proposing to add more conservatism in the case of non-senior tranches in order to recognise their increased risk relative to senior tranches and to protect against arbitrage opportunities.

Setting  $F$  equal to 1 for senior securitisation exposures helps to provide consistency between the securitisation framework and the SA framework for credit risk by avoiding instances where a bank would have to hold more capital for a senior securitisation exposure than if it held all of the underlying exposures directly and did not benefit from any credit enhancement.<sup>35</sup> However, this value of  $F$  for senior exposures might give room to arbitrage opportunities. For example, consider a bank that had been approved to use the IRB approach for the underlying pool of exposures. If the bank knew that the capital charges

<sup>35</sup> This issue is discussed in more detail in section IV.

under the BCRA would be lower than those under the  $CR_{KIRB}$  (for example, in case of a pool of high-risk exposures), the bank could claim that it could not calculate IRB on an underlying pool of exposures. In such a case, the bank would actually benefit from using the BCRA, even though the BCRA is intended to be a conservative fall-back approach relative to the other approaches.<sup>36</sup> One option to address this concern would be to set the parameter  $F$  equal to 2 in all instances. Consistency with the SA credit risk framework could still be ensured through the risk-weight cap discussed in section IV below.

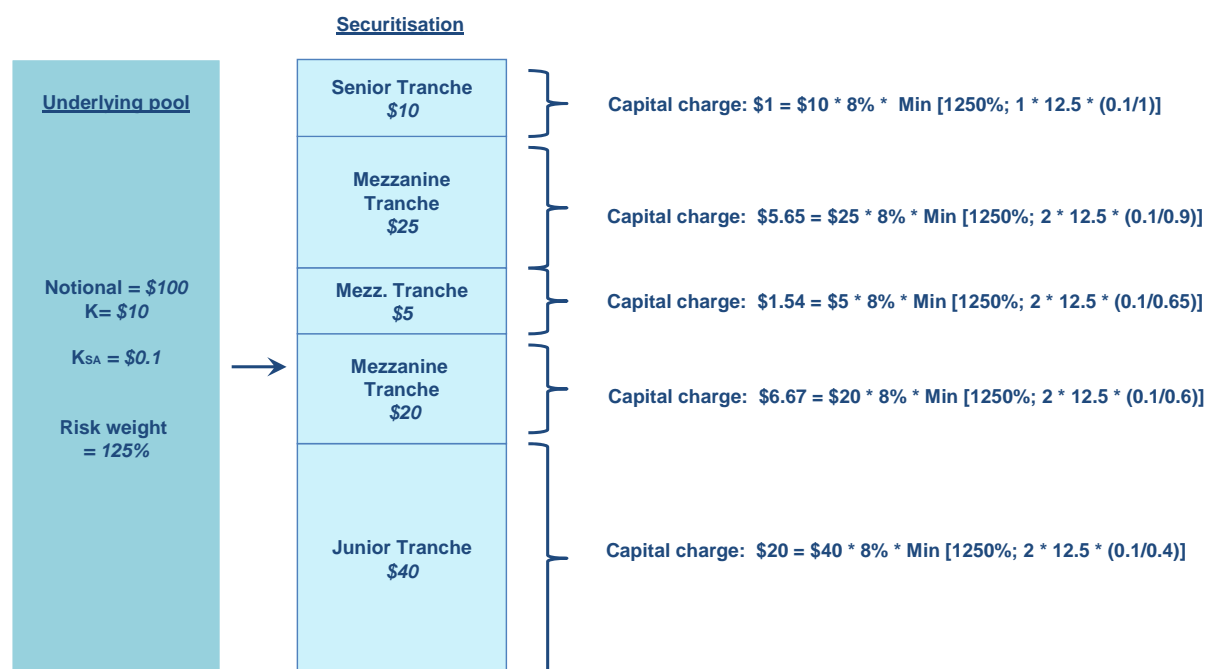
**Question 12:** *Has the BCRA been appropriately calibrated and formulated?*

**Question 13:** *What factors should the Committee consider in weighing whether the  $F$  parameter should be set at 2 for senior as well as non-senior tranches to avoid arbitrage opportunities?*

Figure 1 below provides an illustration of the BCRA. The hypothetical average risk weight is 125%, the capital charge for the portfolio of \$100 is therefore  $K=\$10$  and the capital per unit of exposure is  $K_{SA}=0.1$ . The figure shows the capital charges for each tranche and not the risk weights.

Figure 1

### Application of the BCRA to a securitisation



### (iii) Resecuritisation exposures

Given the challenges in quantifying the risks associated with resecuritisations, in particular the correlations among the underlying securitisation exposures, the Committee proposes that resecuritisations be treated exclusively by means of the concentration ratio approach, using the same formula as for the BCRA above, but with different values of the multiplier  $F$  and with using the capital charges of the underlying securitisation exposures under the revised securitisation framework.

<sup>36</sup> Such a scenario is less likely for non-senior tranches since the parameter  $F$  is set (more conservatively) equal to 2. For senior tranches, with  $F$  equal to 1, the possibility of arbitrage is higher.

More specifically, for resecuritisation exposures,  $F$  would be set equal to 1 for both senior and non-senior tranches if all the underlying exposures were securitisation exposures. The rationale for not setting  $F$  equal to 2 for instances where the underlying exposures are securitisation exposures is that the Committee believes there is already a sufficient degree of conservatism built into the treatment of resecuritisations through the approaches provided.

**\*\* Clarification on the application of the CR in the case of mixed underlying pools**

*(a) Underlying pool composed of non-securitisation SA and IRB exposures*

Mixed pools of SA and IRB exposures could arise in instances where a bank is permitted to use the IRB approach on only a subset of the underlying exposures (this case is explicitly referenced in the current securitisation framework in paragraph 607); or where a bank is approved to apply the IRB approach to all of the underlying exposures, but possesses sufficient data to apply the IRB approach to only a subset of exposures.

As noted above as part of the discussion of the MSFA and the  $CR_{KIRB}$ , these approaches would only be permitted to be used when a bank could calculate IRB parameters for all of the underlying exposures and therefore would not be permitted to be used in the context of mixed pools. Furthermore, if none of the other approaches were available for assigning capital (eg revised RBA, SSFA), the bank would be permitted to use the BCRA.

Use of the BCRA for this type of mixed pools provides a fairly simple approach that generally should prove to be relatively conservative. However, the Committee recognises that other approaches to mixed pools are also conceivable. For example, the  $CR_{KIRB}$  and the MSFA could be permitted to be used on a *pro rata* basis in conjunction with the BCRA for mixed pools. While such an approach would provide for a potentially more risk-sensitive treatment, it might also introduce additional complexity into the framework. The Committee is interested in understanding the materiality of mixed pools in order to better assess the trade-offs associated with alternative treatments.

**Question 14:** *How prevalent and material are securitisation exposures backed by mixed pools?*

**Question 15:** *Is the proposed treatment for mixed pools appropriate, or should another approach be employed?*

*(b) Underlying pool composed of non-securitisation and securitisation exposures*

A mixed pool could also arise when the underlying exposures are comprised of securitisation exposures and non-securitisation exposures (which in turn could be a mix of IRB and SA credit exposures). In such case, the value of  $F$  for non-senior exposures would be calculated as a weighted-average with  $F$  being set equal to 1 for underlying securitisation exposures, and to 2 for non-securitisation exposures. In contrast to the case of securitisation exposures backed by mixed pools of non-securitisation SA and IRB exposures, mixed pools containing securitisation and non-securitisation exposures would employ a *pro rata* approach. This *pro rata* approach is viewed as necessary in order to protect against arbitrage opportunities.

If the non-securitisation exposures were a mix of SA and IRB exposures, the weights for the non-securitisation exposures would be based on the capital charges of the underlying exposures using risk weights under the SA for credit risk (ie as under the BCRA and without making any distinction among SA and IRB exposure, for consistency with the treatment above noted for mixed pools).

The weights for securitisation exposures would be based on the capital charges of the underlying securitisation exposures under the revised securitisation framework.

## IV. Other proposed changes and clarifications

This section discusses other proposed revisions to the securitisation framework, beyond those discussed above.

### Definition of maturity (M)

Tranche maturity, which would be used as a direct input to the revised RBA and MSFA, is proposed to be defined in line with the definition currently used in the wholesale IRB framework (see Basel framework, paragraph 320). It would be based on the weighted-average maturity of the contractual cash flows of the tranche. Alternatively, instead of calculating the weighted-average maturity, a bank would be able to choose simply to use the final legal maturity. As under the wholesale IRB framework, tranche maturity would have a 5-year cap and a 1-year floor.

The contractual payments must be unconditional and must not be dependent from the actual performance of the securitised assets. If such unconditional contractual payment dates are not available, banks should use the final legal maturity.

When determining the maturity of a securitisation exposure banks should take into account the maximum period of time they are exposed to potential losses from the securitised assets:

- In cases where a bank provides a *commitment* that contractually has a short maturity, but a draw on that commitment would expose the bank to risk for a longer period (eg until the maturity of the securitised assets), the bank should calculate the maturity of the securitisation exposure resulting from this commitment as the maximum of the contractual maturity of the commitment and the maturity of the asset(s) to which the bank would be exposed after a draw has occurred. If those assets are revolving, the longest contractually possible remaining maturity of the asset that might be added during the revolving period would apply, rather than the (longest) maturity of the assets currently in the pool.

Typical examples for this situation are put options or liquidity facilities, where for example, the facility itself has a commitment period of 364 days but after being drawn on that commitment the bank might hold a securitisation exposure with a maturity of several years. The same treatment would also be applied to all other instruments where the risk of the commitment/protection provider is not limited to losses realised until the maturity of that instrument. For the same reason the maturity of Total Return Swaps (TRS) that create a securitisation exposure or where the reference asset is a securitisation exposure would be based on the maturity of the protected position.

- For *credit protection* instruments (eg written credit default swaps) that are only exposed to losses that occur until the maturity of that instrument, a bank would be allowed to apply the contractual maturity of the instrument and would not have to look through to the protected position. Paragraph 584 of the current framework would be adjusted accordingly to reflect this distinction.

**Question 16:** *Is the definition of maturity appropriate, in light of the Committee's objectives?*

### Elimination of requirement to deduct below-investment grade exposures for originators under the SA

In the SA, originating banks that retain a below-investment grade securitisation exposure are currently required to deduct such an exposure from capital (paragraphs 569 and 570 of the current framework). The Committee is proposing to delete this requirement, which should help to reduce cliff effects and allow for greater consistency between the SA and IRB

approaches for securitisations, both of which would make use of the same revised RBA risk weights under this proposal.

### **Elimination of special treatment for certain exposures**

#### ***(i) Second loss or better positions in ABCP programs***

With the introduction of the BCRA, the Committee proposes to eliminate the exceptional treatment for exposures in a second loss position or better in ABCP programmes under the SA (see current paragraphs 574 and 575 of the Basel II framework). Instead, these positions would be treated under the BCRA, which should provide greater consistency within the securitisation framework and reduce complexity.

#### ***(ii) Fall-back option for IRB liquidity facilities***

For the reasons just noted in (i) above, the possibility for IRB banks to use SA risk weights when calculating the capital requirements for a liquidity facility (see current paragraph 639) is no longer needed and would be eliminated.

#### ***(iii) Preferential credit conversion factor for eligible liquidity facilities under the SA***

Under the current SA securitisation framework, eligible liquidity facilities are subject to a 50% credit conversion factor. In an effort to further simplify the framework by reducing the number of exceptional approaches, the Committee proposes to eliminate the special treatment for eligible liquidity facilities as articulated in paragraphs 576 and 579 of the current Basel framework.

### **Use of inferred ratings under the SA**

Inferred ratings for securitisation exposures are permitted within the current IRB securitisation framework (paragraphs 617 and 618 of the current rules text), but are not permitted within the SA.

The Committee is now proposing to allow the use of inferred ratings for securitisation exposures under the SA securitisation framework, with the same safeguards and requirements for recognition as required under the current IRB securitisation framework (see paragraphs 617 and 618 of the current Basel framework). This will make the revised RBA in the SA and IRB securitisation frameworks more consistent, and it will also provide for greater consistency with the SA for credit risk, as inferred ratings for wholesale exposures are already permitted within the SA. Allowing the use of inferred ratings will also provide an additional mechanism by which to meet the requirement noted above for having two ratings.

### **Risk-weight floor**

In the current securitisation framework, the lowest risk weight is 7% under the IRB and 20% under the SA.

The lowest risk weight proposed under the revised securitisation framework, for both long and short-term exposures, would be set at 20%. This would be consistent with the current SA securitisation framework, and would be equal to the lowest risk weight that can be assigned to other credit exposures within the SA for credit risk other than certain sovereign exposures. This change would reduce cliff effects from deterioration of securitisation exposures and would mitigate the model risk associated with credit ratings, risk modelling, and risk-weight calibration.

Model risk is arguably more acute for securitisations exposures, because setting capital requirements for securitisation exposures involves multiple layers of modelling exercises and assumptions. The modelling work done to simulate the behaviour of securitisation exposures is itself based on the modelling work to estimate the behaviour of the underlying assets. This

layering of models and assumptions can amplify the uncertainty associated with capital estimates. In addition, the uncertainty in capital estimates is higher for highly-rated, seemingly low-risk tranches and there is an asymmetric nature to the uncertainty.

**Question 17:** *Is the proposed 20% risk-weight floor set at an appropriate level? Please provide justification and evidence, to the extent possible, for alternative levels for the risk-weight floor.*

**Question 18:** *Should the risk-weight floor for short-term exposures be the same as for long-term exposures?*

### **Maximum capital charge (overall cap)**

According to paragraph 610 of the Basel capital framework, for banks “using the IRB approach to securitisation, the maximum capital requirement for the securitisation exposures [they] hold is equal to the IRB capital requirement that would have been assessed against the underlying exposures had they not been securitised and treated under the appropriate sections of the IRB framework including Section III.G.” The Committee proposes to retain under the IRB framework this provision, which effectively provides a limitation on the maximum capital charge equal to the amount of capital the bank would hold if it held the underlying assets backing the securitisation pool directly.

In addition, the Committee proposes to apply a similar limitation on the maximum capital charge for *originators and sponsors* under the SA securitisation framework. Under such a limitation, regardless of the methodology used (eg revised RBA, SSFA, etc), an originating or sponsoring bank’s maximum capital requirement for exposures to a securitisation would be limited to the capital requirement that would apply under the SA if the bank held all of the underlying exposures directly.

The process of securitisation from the originator’s perspective can be viewed as similar to credit risk mitigation, as at least some risk of the underlying exposures is transferred to another party. Under this view, it would be inappropriate for a bank to have to hold more capital after securitisation than before, as its risk should be reduced through the process of securitisation. Supporting this concept is the operational requirement that significant risk be transferred in order to recognise any benefits from a securitisation for originators and sponsors.

### **Maximum risk weight for senior securitisation exposures (RW cap)**

#### **(i) For senior securitisation exposures under the SA framework**

A risk-weight cap effectively exists in the current SA securitisation framework, although its scope is limited. Specifically, paragraphs 572 and 573 of the current framework allow a bank (either originator or investor) to apply a “look-through” approach to *senior, non-rated* securitisation exposures. Under this approach, the unrated most senior securitisation exposure receives a maximum risk weight equal to the average risk weight applicable to the underlying exposures, subject to supervisory review.

The Committee is of the view that this cap should apply irrespective of whether the securitisation exposure is rated or not. Therefore, the Committee is proposing to allow a bank to apply a look-through approach to senior securitisation exposures, regardless of whether the tranche is rated. This proposed approach reflects the view discussed above that a bank should not have to apply to a senior tranche a higher risk weight than if it held the underlying exposures directly, given the credit enhancement it receives from the subordinated tranches.



**(ii) For senior securitisation exposures under the IRB framework**

For the same reasons noted above with respect to the SA securitisation framework, the Committee also proposes to apply a risk-weight cap for senior exposures under the IRB framework. This risk-weight cap would equal the risk weight that would apply to the underlying exposures under the IRB framework.

While these risk-weight caps along with the overall caps noted above should provide sufficient safeguards against excessive capital requirements, the Committee also considered whether the  $CR_{KIRB}$  could also be an additional safeguard, by allowing banks to use it under all circumstances where banks can calculate  $K_{IRB}$ . This would mean that the capital requirements generated by the  $CR_{KIRB}$  would be *de facto* an additional cap. In theory,  $CR_{KIRB}$  should generate relatively conservative capital charges since it does not provide any recognition of credit enhancement. Based on QIS results, the Committee will assess whether the additional complexity in the framework resulting from adding the  $CR_{KIRB}$  cap would be warranted.

**Interaction between floors and caps**

In the rare case where both a cap and floor treatment could be applicable, it is the Committee's view that, should a cap generate a lower risk weight than the floor, the risk weight resulting from the cap should be used.

Although floors have been proposed to address model risk, given there may be cases where a particularly high quality underlying pool leads to very low risk weights, the Committee believes, consistent with the rationale noted above, it would be inappropriate to assign a higher risk weight to a securitisation exposure than would be required if a bank held the underlying exposures directly. The Committee also expects that the frequency of a conflict between a floor and cap should be rare and generally would be most likely to occur in relation to senior tranches.

**Question 19:** *Are the proposed caps and their interactions with the proposed floor risk weight appropriate?*

**Early amortisation provision revisions**

The Committee proposes to revise the treatment of revolving credit exposures (eg revolving credit card, mortgage and home equity loan transactions) that incorporate early amortisation provisions which, if triggered, would in any way increase the bank's exposure to losses associated with the underlying revolving credit facilities. In particular, the Committee has observed that securitisations with (both controlled and non-controlled) early amortisation provisions typically result in very limited, if any, transfer of risk to investors. As such, the Committee proposes to preclude an originator or seller of assets into such a securitisation from applying the securitisation framework for the sold assets. That is, all of the securitised assets in these circumstances would be assessed as if they were "on-balance sheet" for regulatory capital purposes.

Under the proposed revised securitisation framework, the special treatment that currently exists for controlled and non-controlled early amortisations would be eliminated (see paragraphs 548–550, 590–592, 594–605, and 643 of the current framework) or amended accordingly (paragraph 337). However, the exceptions contained in paragraph 593 of the current framework would be retained provided that the early amortisation provision does not result in subordination of the originator's interest.

## **Treatment of write-downs and purchase discounts**

In reviewing the current Basel securitisation framework and the implementation of those standards, the Committee identified important differences in the treatment of write-downs and purchase discounts for securitisation exposures across member jurisdictions. The differences emanate from differing amounts of “capital credit” given for purchase discounts or write-downs of securitisation exposures.

In some jurisdictions, write-downs and purchase discounts are allowed to reduce the amount of an exposure that must be risk weighted. Instead of using the notional or face value of a securitisation exposure, for example, banks are allowed to apply the applicable risk weight to the carrying value of securitisation exposures. In other jurisdictions, write-downs and discounts are given full capital credit by offsetting capital requirements by the amount of the write-down or discount.

In working to develop a more consistent treatment, the Committee considered several interrelated factors. These factors included considering whether write-downs and discounts should be treated in the same manner as well as the causes for discounts and write-downs, which can be related to credit risk or due to other factors, such as interest rate movements or liquidity. The Committee favours treating write-downs and discounts on a consistent basis and believes that trying to differentiate among the causes for write-downs or discounts (credit vs interest rate, etc) would add excessive complexity to the framework.

The Committee is proposing that write-downs and discounts be addressed in the securitisation framework by using the carrying value as the amount to be risk weighted, rather than the notional value, consistent with the approach employed currently in some jurisdictions.

The Committee does not support allowing purchase discounts and write-downs to directly offset capital requirements. While this method is computationally simple, the BCBS is concerned that it would grant excessive capital benefit to write-downs and discounts. Whenever the discount is greater than the capital requirement, as is common, such a treatment could result in zero capital requirements against exposures that entail substantial risk.

**Question 20:** *Are there other approaches that could provide a more risk-sensitive treatment while still being prudent and operationally straight-forward to implement?*

## **Revisions to the treatment of securitisation positions under the market risk framework**

The Basel Committee’s updated enhancements to the market risk framework published in February 2011 (Basel 2.5 market risk enhancements) stated that the specific risk of securitisation positions as defined in paragraphs 538 to 542 which are held in the trading book is to be calculated according to the method used for such positions in the banking book, with the exception of the correlation trading portfolio, which is subject to a new comprehensive risk measure and a floor set at 8% of the banking book requirements applied to the larger of net long positions and net short positions.

Since a fundamental review of the trading book rules is currently under way, the Committee is not proposing specific revisions to the trading book rules at this stage. However, the Committee continues to fully support the principle embodied in the Basel 2.5 market risk enhancements of avoiding opportunities for regulatory capital arbitrage. The Committee intends to carry forward this principle as it revises both the trading book and securitisation capital standards.

## V. Key assumptions and theoretical underpinnings

In developing and calibrating two of the main approaches for assigning capital requirements – the MSFA and the revised RBA – the Committee attempted to use a consistent set of assumptions and underlying modelling techniques to ensure the greatest level of consistency possible across approaches. This section provides a high-level, non-technical overview of key assumptions and methodologies used in developing and calibrating the approaches just mentioned. (A more complete and technical discussion of the modelling and recalibration work underpinning the proposed revisions to the securitisation framework will be contained in a forthcoming technical note).

A guiding principle in developing the proposed framework has been to ensure as much consistency as possible between the securitisation framework and the general IRB framework with a view to reducing arbitrage opportunities. One difference between the more recent calibration work and the work conducted in developing the original Basel II RBA risk weights involves assumptions about the diversification benefits that arise from a bank's investment in a securitisation tranche. Previous calibration work in effect assumed that a bank would derive substantial diversification benefits from investing in securitisation tranches beyond the assumptions under the general IRB framework, reflecting an assumption that loss rates on securitised assets generally are less correlated with the single systematic risk factor underpinning the IRB framework than loss rates on the rest of the bank's portfolio.<sup>37</sup> In the recalibration work performed in developing this set of proposals, this assumption has been changed to assume no such diversification benefit because there is no empirical evidence that suggests it is warranted.

Another important assumption embedded in the RBA recalibration is that the same ratings for structured finance and corporate exposures imply the same expected loss rates for investors. One implication of this is that it is assumed that rating agencies will "fix" or have fixed the errors in rating methodologies for structured finance that were revealed during the recent crisis.

Another notable calibration decision was to give no credit for future margin income (FMI) earned on a securitisation exposure in the models used to develop the revised framework. This assumption is not entirely consistent with the IRB wholesale framework, where the calibration of maturity adjustments implicitly provides limited recognition of FMI. However, the Committee favoured a conservative treatment of FMI for securitisation exposures given the recent problems in this sector, concerns that the Committee has expressed in the past related to FMI, and the additional complexity of appropriately capturing the effects of FMI in the modelling assumptions.

Empirical analysis conducted by the Committee suggests that a significant determinant of capital requirements is the credit quality of the exposures backing a given securitisation exposure. For example, analysis indicated that at inception of a deal, a senior "A" rated securitisation exposure backed by a pool of relatively low-quality (eg "B") underlying loans would require substantially more capital than a similarly-rated securitisation exposure backed by relatively good quality (eg "BBB") loans. This factor played an important role in the calibration of the revised RBA. The revised RBA has been calibrated by assuming that for tranches rated BB or better, the underlying pool quality would be the equivalent of loans having a 4.73% PD with a 60% LGD (for further detail on these assumptions, see forthcoming technical note).<sup>38</sup> These PD and LGD assumptions were selected to be roughly consistent with the average historical default rate for corporate bonds having an external

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<sup>37</sup> Stated differently, it was assumed that if the securitised assets were held directly by the bank on its balance sheet, they would warrant a capital charge that was lower than the IRB capital charge.

<sup>38</sup> For tranches rated below "BB", the pool's PD was set equal to an estimate of the historical default rate for corporate bonds having an external rating three notches below the tranche rating.

rating of “B”, and with appropriate stress loss severity assumptions for corporate bonds. This calibration helps to ensure that capital requirements under the revised RBA are less likely to be understated than they would be with a lower PD or LGD assumption. The Committee is mindful that this assumption will result in a significant increase in risk weights relative to those in the current securitisation framework. In considering this assumption, the Committee tried to balance its concerns with credit rating agency model risk and supervisory calibration model risk, with its interest in maintaining consistency between the Basel credit risk framework for wholesale and retail exposures that underlie securitisation structures and the securitisation framework. The Committee also wanted to ensure that the revised RBA generates prudent risk weights, and does not introduce new arbitrage opportunities.

As noted earlier, the MSFA and the revised RBA have been developed using a relatively consistent set of underlying assumptions. The revised RBA parameters are generated using the same formulas underlying the MSFA, except that the supervisory add-ons embodied in the MSFA were suppressed for purposes of calibrating the revised RBA.<sup>39</sup> In addition, the calibration employed an assumed rating model in which the rating for a credit exposure is based on the instrument’s expected loss rate (measured as expected default losses through maturity, per unit of initial principal). The equations underlying the MSFA and the RBA assume an underlying multiperiod Merton-type model driving defaults of individual borrowers and a Capital Asset Pricing Model (CAPM) type approach for pricing assets at the end of the assumed one year capital horizon.

The revised MSFA uses the same formulas underlying the RBA and incorporates supervisory adjustment factors that exist in the current SFA: tau and omega.<sup>40</sup> The tau and omega parameters used in the MSFA (100 and 10, respectively) are more conservative than those used in the current SFA (1000 and 20, respectively). These adjustments reduce cliff effects for junior tranches and introduce conservatism for senior tranches that are subject to insufficient capital requirements under the current framework.

**Question 21:** *Are the assumptions used in developing and calibrating the approaches discussed above appropriate in view of the Committee’s stated objectives? Please provide empirical justification for alternative assumptions to those noted above.*

## Retail securitisations

The calibration work conducted by the Committee has used assumptions based on underlying corporate loan exposures. However, the Committee has considered whether adjustments for retail exposures should be made, especially related to the important maturity parameter used in the MSFA and revised RBA.

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<sup>39</sup> Specifically, no floor capital charge was imposed, the tau and omega parameters were set at infinity, and positions below  $K_{IRB}$  were not subject to an automatic 100% capital charge.

<sup>40</sup> The tau adjustment increases the capital charge for more senior tranches and can be motivated in either of two ways. The tau parameter can be seen as an adjustment for taking into account higher asset value correlations within the pool compared with the bank’s overall portfolio. Alternatively, the tau parameter can be viewed as an adjustment for taking into account imprecision or uncertainty associated with translating the securitisation’s actual cash flow waterfall into the highly simplified seniority-driven structure assumed by the MSFA (and current SFA). For example, the MSFA (and current SFA) assume implicitly that senior investors are repaid in full before junior investors receive any payments. In practice, some additional pool correlation and some deviations from absolute loss prioritisation arise in most securitisations, so both need to be taken into account.

The omega adjustment is essentially a parameter used to help smooth the marginal capital curve to avoid discontinuities. More specifically, it increases marginal capital requirements for thin tranches in the vicinity of  $K_{IRB}$  (a) to compensate for the fact that charges in this region of the loss space are especially sensitive to  $K_{IRB}$  estimates and (b) to avoid discontinuities in marginal charges for thin tranches (arising from the automatic 100% charge below  $K_{IRB}$ ) that could distort bank behaviour.

Whereas maturity is an important driver of capital requirements within the IRB framework for corporate loan exposures, it is not an explicit factor within the retail IRB risk weight functions. In fact, the underlying IRB requirements for retail exposures implicitly incorporate, to some extent, maturity effects within the asset value correlation (AVC) parameters. Consequently, the incorporation of an explicit maturity adjustment within the MSFA and revised RBA has the potential to over-estimate, or double-count, the effects of maturity for retail exposures. However, some retail securitisations feature assets with higher default risk than is assumed in the RBA or higher correlation than is implied by the MSFA. All in all, the Committee has chosen not to propose any adjustments to the framework for retail securitisations. The Committee recognises that this could impact the prudent capital requirements for retail securitisation exposures and acknowledges that there might be room for adjustments for retail exposures (eg applying haircuts to the retail AVCs). Notwithstanding, based on the analysis conducted by the Committee on a portfolio that was largely corporate, the impact of the potential double counting is not viewed as sufficiently material to add significant complexity to the framework. In addition, provisions have been included to allow supervisors to address the risks relating to higher default risk or correlation.

**Question 22:** *Is the proposed treatment of retail securitisations using the same approaches as for corporate securitisations appropriate? Would additional complexity (in the form of an additional formula to adjust the AVCs of retail underlying exposures) be justified to remove the double-counting effect of maturity effects?*

**Question 23:** *How could concerns that securitised retail exposures have high default risk or high correlation be managed?*

*Please provide data supporting any modifications to the proposed approaches, particularly the MSFA and revised RBA, to account for differences in risk based on underlying exposure types.*

## VI. Calibration of the proposals and planned QIS

Under the proposed revisions discussed above, overall capital requirements for securitisation exposures are expected to increase, which would address some of the prudential concerns with the current framework noted early on in this consultative paper. While the Committee has endeavoured to enhance capital standards to improve the prudential nature of the Basel securitisation framework, it also recognises the potentially substantial increases in capital that could result from these proposed changes. In addition, the Committee wishes to ensure that the calibration of the overall framework is consistent with the risks presented by securitisation exposures to banks, and it has sought to align the relative calibration of the approaches in a manner that ensures internal consistency and avoids regulatory arbitrage opportunities.

One specific issue that the Committee will consider as it moves forward in calibrating the various approaches within the revised securitisation framework is to what extent and in which specific instances the Basel II 1.06 multiplier that applies under the IRB framework to credit exposures should be applied.

While the Committee has conducted analysis using actual transaction data on a small sample of securitisation transactions, the Committee intends to perform a more complete analysis of the possible impact of the proposed changes on capital requirements by conducting a quantitative impact study (QIS) focused on these securitisation proposals, which will be conducted during a period that will overlap with the consultation period of this proposal.

The Committee encourages banks to participate in this QIS and also seeks feedback as part of this consultation on the absolute and relative (ie among approaches) calibration of the different proposed approaches.

**Question 24:** *Is the relative calibration of the approaches appropriate? Please provide empirical data to support any conclusions.*