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FBF Response to BCBS 265 Consultative Document

on fundamental review of the trading book

The FBF welcomes the second set of proposals regarding the fundamental review of the trading book. We believe that BCBS has undertaken a truly fundamental review of the trading book prudential framework and we support the general orientation and the progress achieved in many fields such as the design of a trading book/banking book boundary that is less permeable, more enforceable but still consistent with the way risks are managed and the removal of most of the double counting that is plaguing Basel 2.5.

We would like to stress however that although BCBS 265 represents overall a conceptual construct that is, in many respects, sounder and more robust than the current market risk prudential framework, some of the new provisions raise significant concerns that we develop more in detail in our response. In particular, we highlight the following:

Finalisation and calibration of the rules

We stress that given the magnitude of the contemplated changes, the consultation period seems extremely short and it is very difficult to assess at this stage the impact of all these new measures on banks day-to-day market risk management and business organization. In this respect, the QIS exercise will be of paramount importance to assess the appropriateness of the proposals and ensure their adequate calibration. As indicated to the TBG on December 2013, we believe that given the complexity of the revised framework, any successful calibration can only result from an iterative impact assessment whereby proposals are improved and tested progressively over an appropriate monitoring period. Once the new rules are stabilized, a phased-in implementation over several years would be required to accommodate the significant implementation challenge of the revised trading book framework.

The Revised Internal Model Approach

The revised internal model approach has been considerably improved compared to the first consultative paper with regard to aspects such as the constraint on diversification and the stress calibration. Nevertheless, the operational implementation, as we understand it from BCBS 265, marks a significant departure from the principles underpinning the current Basel framework as capital would be based on a metric that is:

- disconnected from what is used for risk management: first, given the way liquidity horizons are specified and incorporated in the calibration; secondly, as potentially large portions of portfolios/risks will move to non-model based approaches (correlation trading, non modellable risk-factors, “devaluated” trading desks based on a crude “leverage ratio” criteria) and thirdly, considering the potential use of the standard method as a floor;
- disconnected from what is backtested and backtestable and validated as only 1-day measures can be properly validated.

We propose in our response a simple alternative which, we believe, overcomes the issues highlighted above while still achieving the Committee’s objectives.

The Revised Standard Approach (RSA)

While we support the Committee’s goal to achieve a more risk sensitive standard method, we believe the proposed cash flow based approach combined with an inadequate recognition of hedging and netting benefits is simply missing the target on top of introducing an undue level of complexity.

We believe it is possible to recast the TBG’s proposal by replacing the discounted cash flows by risk factor sensitivities that are readily available in banks’ market risk systems and extensively used, validated and controlled as part of the banks’ day-to-day risk management processes and other regulatory requirements.

Whatever the improvements to the revised standard approach, we still believe it is totally inappropriate to use it as a basis for a floor to the model-based approach and we stress the grave unintended consequences on risk management and right sizing of capital requirements that such a floor would have.

Finally, we understand the goal of disclosing the standard approach capital outcome as a way to promote transparency and comparability. We fear however that the standard capital charge would become the only considered information, not reflecting the better measurement of the risks through internal models approved by the regulators and then a more precise capitalization of the banks. We also believe that imposing such a requirement on a desk by desk basis actually conflicts with that objective as all banks do not have comparable organisations.

The trading / banking book boundary

We welcome the design of a boundary that is aligned with the way risks are managed and we support the goal of harmonizing the trading book or banking book designation across jurisdictions.

We believe there are a few areas where a rigid approach in terms of a presumptive list for a banking book or trading book classification would result either in a construct that is inconsistent or a compliance burden that is unnecessarily heavy. We present in our detailed response cases which may require an exception or an amendment to the presumption list.

The operational challenges

The operational implications of the Fundamental Review of the Trading Book will be extensive in respect of the computational, data and validation challenges that it provokes. As a matter of illustration, factor-in the liquidity horizons in the way specified in BCBS 265 will require to entirely re-build the internal model infrastructure. Similarly, the decomposition of instruments into cash flows which forms the basis of the revised standard method is not relying on any existing mapping or risk representation and will require building new data feeds and new computational engines that will conflict with existing pricing and risk methodologies and imply new sets of controls. Perhaps as significant as the operational considerations of the FRTB will be the training and education considerations associated with it given the significant departure from the way institutions monitor and manage risks.

Balancing risk sensitivity, simplicity and comparability

We fully agree that the revised market risk framework should balance simplicity, risk sensitivity, and comparability. We stress in this respect that the Trading Book Fundamental Review must be viewed within the broader context of the multiple regulatory initiatives taken in the aftermath of the crisis. The combination of Basel 3, the OTC derivatives reform (including clearing obligation, mandatory exchange/SEF trading, bilateral risk mitigation), structural reforms (Liikanen, Volcker, Vickers etc) are all pushing complex products away from banks balance sheet. The balance between risk sensitivity, simplicity and comparability within the trading book revised framework should be assessed taking into account this new background.

Furthermore, the supervisory bodies have a key role to play with the banks in stabilizing the regulatory framework in order to restore confidence in the medium term. It is thus critical not to rush and take the risk of having to re-build again everything in the coming years. Expanding the time that is scheduled either for the QIS or for the final completion of the FRTB is therefore key to enable the industry and the Committee to work together in a constructive, iterative process to achieve the Committee' stated objectives.

I. Revised Internal Model Approach

Our first observation is that the proposed framework will be operationally very burdensome due to the computation of multiple expected shortfalls (ES) (whole trading book level, asset class level, trading desk level). This combined with the prescribed long term liquidity horizons introduces a strong disconnection between risk metric and new internal models used for regulatory capital purposes.

We understand that the current proposal to apply a multiplier equal to 3 or more (depending on backtesting performance) should be adjusted based on the QIS results. We have a specific concern regarding the multiplier applied to ES on CVA and associated capital charge which could be more severe due to prescribed long term credit horizons.

Moreover we think the monthly recalibration of the stressed period is too demanding both for banks and supervisors. We see limited benefits in such frequent recalibration and believe that the current practice of at least yearly recalibration is suitable.

a. Implementation of liquidity horizons

We agree on the goal of allocating more capital to less liquid risk. We consider however that many of the liquidity horizons proposed by the Basel Committee are overestimated (this is particularly true for Forex or on Sovereigns IR) and that the granularity of risk factor categories is not sufficient (e.g.: there is no distinction between emerging and developed countries for sovereign credit spreads). More importantly, we have significant concerns regarding the approach recommended in the second consultative paper to integrate these different liquidity horizons into the risk metric, i.e. the use of overlapping long horizon returns.

Indeed, we would like first to stress that the direct use of returns over different liquidity horizons would completely break the link between the capital charge and the way risks are managed at desk level which should remain an overarching principle for any capital framework.

Furthermore, the relevancy of integrating varying liquidity horizons into the risk metric seems questionable since liquidity horizons will be already taken into account through:

- the TB/BB boundary putting less liquid products in the Banking Book;
- the use of the Standard Approach for less liquid products (securitisations...);
- the calibration of the expected shortfall to a stressed period;
- the exclusion of non-modellable (and less liquid) risk factors from the expected shortfall and the calculation of their regulatory capital based on a stress test approach.

As a consequence, we wonder if the framework such as prescribed by the Basel Committee will not add an unnecessary operational burden.

From an economic point of view, applying shocks with varying liquidity horizons to the different risk factors related to the same instrument would not make sense. First, it would create a disconnect between the hedged risk factor and the hedging one if they do not have the same liquidity horizons. Second, it could lead to create incoherent market conditions which could generate issues in the pricing of products. Third, the expected shortfall calibrated on current market conditions would be far less reactive: if some modellable risk factors are assigned to the 250-day bucket, the large difference between the buckets (from 10-day to 250-days) would mean that the most recent 10-days scenario would be 1-year old (Cf. diagram below); therefore the current ES window would be 1-year old as well contrary to the current VaR window leading to a far less reactive regulatory capital measure. It would accentuate the rupture between the metric used for the regulatory capital computation (which would be based on scenarios observed one year ago) and the approval process (which would be based on the current year).

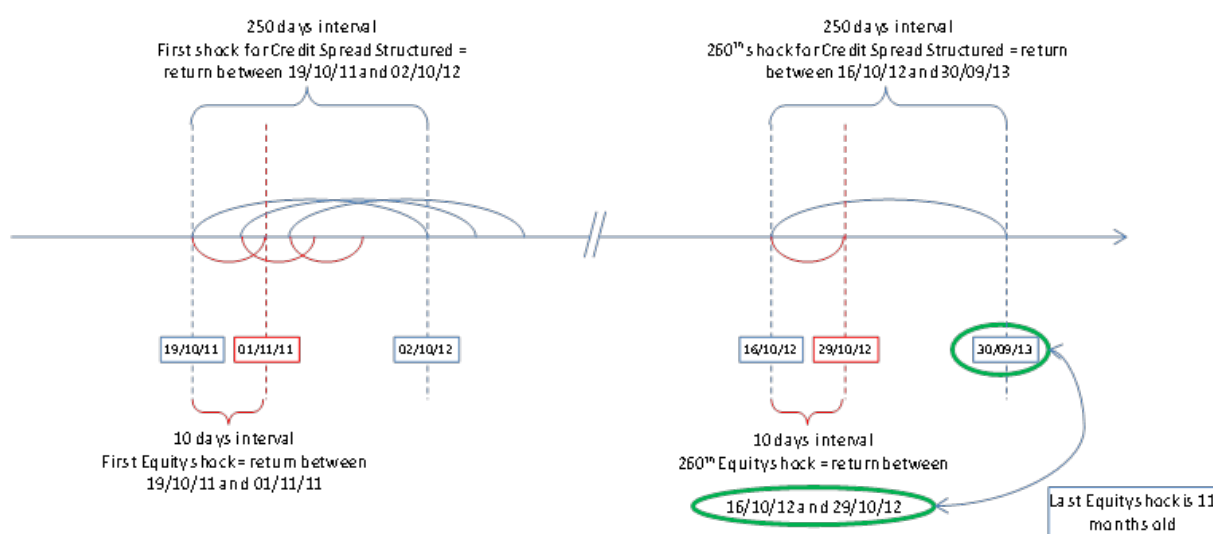


Figure 1 – Issue caused by multiple liquidity horizons

From a statistical point of view, the approach proposed by the Committee raises several issues:

1) Overlapping returns/autocorrelation

BCBS proposes the use of overlapping long-term returns for the computation of the expected shortfall. However, such an approach would lead to calibrate the expected shortfall based on dependent data (autocorrelation). As a result the percentiles and expected shortfall measures calibrated on such distributions would be strongly biased meaning that the risk metric used for regulatory capital purposes would be incorrect: the longer the liquidity horizons the higher the bias.

2) Trended market

In a trended market (such as the interest rate one since several years with a downside trend) calculating long horizon shocks (20-days) would lead to an excessive number of negative shocks hence introducing an additional bias in the regulatory capital metric. This is especially the case since the expected shortfall will be calibrated on a stressed period: upward/downward trends will be systematically taken into account for a wide range of risk factors leading to strong asymmetrical distributions. These upward/downward trends will not incite to hedge exposures since keeping open positions could lead to lower regulatory capital. Any theoretical solutions that would be envisaged to overcome this issue would involve a higher and undue modelling complexity at odd with BCBS stated objectives.

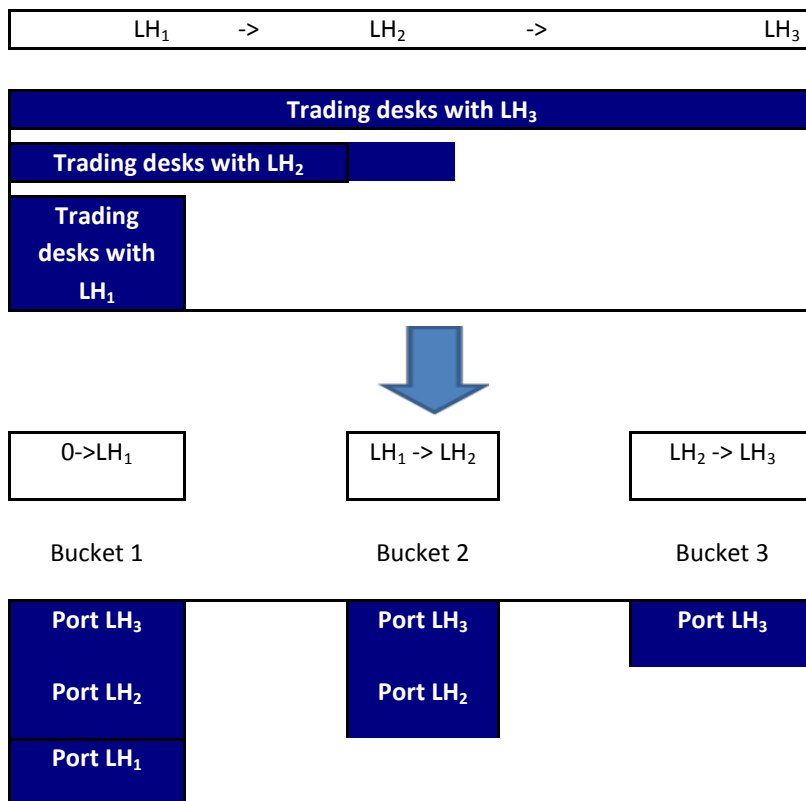
To illustrate this point, we have analyzed the returns distributions (Cf. Appendix) for different underlying (Eurostoxx, Itraxx, 6M Euribor...) belonging to different asset classes and for different time periods (on the stressed periods 2008 and 2009 and on the current period: October 2012 – September 2013). For each time period, we compute the percentage of positive returns for overlapping returns (taking into consideration the liquidity horizons such as prescribed by BCBS) and for rescaled one-day returns. This analysis confirms a strong asymmetry in the observed distributions of the overlapping returns especially for Interest Rate and Credit asset classes. For example, long horizon returns computed on Itraxx index in 2009 exhibit 11% of positive returns vs 49% for rescaled one-day returns.

Proposal

We believe that only solutions based on an appropriate re-scale of 1-day shocks/P&Ls will strike the appropriate balance between simplicity, alignment with risk management and better allocation of capital depending on the liquidity of risks.

One possible solution that is fairly consistent with the approach laid down in footnote 36 of BCBS 265 would be the following:

Let's denote LH_i the liquidity horizon adjustment factor for each trading desk and let's assume that $LH_1 < LH_2 < \dots < LH_n$. We will assume that $LH_0 = 0$. We are going to build n **imbricated portfolios** with the following rule: **Portfolio_i will contain all the trading desks with liquidity horizon equal or greater than LH_i** . For example Portfolio_1 will contain all the trading desks and Portfolio_n only those with liquidity horizon LH_n as illustrated in the chart below:



The total PnL of the Portfolio at the final maturity LH_n can be computed as sum of the PnL of Portfolio i between LH_{i-1} and LH_i

$$PnL = \sum_{i=1}^n PnL(\text{Portfolio}_i, LH_{i-1}, LH_i)$$

Assuming that the PnL distributions of each sub-portfolio during the non-overlapping time period are independent (in practice we disregard effects like auto-correlation), then the total Variance of the PnL can be computed as:

$$Var(PnL) = \sum_{i=1}^n \text{Variance}(\text{Portfolio}_i, LH_{i-1}, LH_i)$$

Assuming the stationarity of the PnL distribution, we can then express the total variance as:

$$Var(PnL) = \sum_{i=1}^n \text{Var}(\text{Portfolio}_i, 0, LH_i - LH_{i-1}) = \sum_{i=1}^n \text{Var}(\text{Portfolio}_i, 1\text{day})(LH_i - LH_{i-1})$$

And finally we are going to assume that the Expected Shortfall is proportional to the Standard Deviation

$$ES^{liq_hor_adjusted} = \sqrt{\sum_{i=1}^n ES(\text{Portfolio}_i, 1\text{day})^2 (LH_i - LH_{i-1})}$$

This solution, on top of being consistent with the FTRB objectives, has several advantages:

- Keeping the integrity of the P&L aggregation as the elementary risk metrics would be computed at a 1-day horizon and aggregated based on 1-day correlations.
- Keeping the right structure of incentives as the capital of each broad business unit would be scaled-up according to the broad liquidity horizon of its activity.
- Allowing for a realistic backtesting (i.e. based on 1-day P&L) as it would rely on the elementary risk metrics which are computed at a 1-day horizon.
- Fairly straightforward to implement.
- In addition, the statistical indicators computed on the same underlyings as above (Cf. Appendix) shows that rescaled one-day returns generate usually more variability and are then more prudent than overlapping returns.

We stress that one corner stone of this proposal is to apply the liquidity horizons at the trading desks level to ensure that hedging relationship is not broken by the application of different liquidity horizons to the hedged and the hedging risk factors. We will propose to the Committee an objective way of determining the liquidity horizons at trading desk level in our final response.

b. Treatment of Credit

(i) Incremental Default Risk Charge

We welcome the suppression of migration risk from IDR. It removes a potential double count and simplifies the default risk measure.

Concerning Equity exposures, we question the rationale of their mandatory inclusion in the IDR perimeter for several reasons:

- It is not clear how to define the default probability in case a company has no debt;
- The definition of Jump-to-Default for equity products is complex and no guidance is provided in the CP;
- The one year liquidity horizon would not be appropriate for the equity asset class and is inconsistent with the liquidity horizons prescribed by BCBS.

Proposal

We therefore recommend that the inclusion of equity exposures in the IDR perimeter remain optional. Banks which choose not to include them shall make sure they capture event risk for equity exposures in their Expected Shortfall calculation.

Furthermore, we have some questions regarding the objectives pursued by the Basel Committee in prescribing the correlation structure (two factors model) as well as the correlations calibration (using equity data observed on a stressed period):

- Either the objective is that banks build and use accurate models which are consistent from an economic point of view. In that case, the proposed framework does not seem appropriate and we should be authorized to keep the underlying structure and principles of our Incremental Risk Charge models which have been approved by National Supervisors. In this respect, we would like to stress the inadequacy of using equity data for the calibration of correlation parameters in the case of Sovereigns counterparts.
- Either the objective is to standardize modelling practices across banks, in which case BCBS should clearly prescribe the main modelling assumptions and parameters, including the value of the correlation parameters.

Proposal

If the latter objective is the predominant one, we propose to use the same correlation parameters than those of the IRBA framework: it would enable to ensure consistency between Trading Book and Banking Book which seems to be one the Committee's stated objectives and would reduce the possibility of arbitrage between both the two portfolios.

Finally, we strongly oppose the introduction of a 3bps floor for local currency sovereign bonds. On top of impairing banks' ability to participate in market-making in G4 currencies, we stress that it is inconsistent with

- the Banking Book treatment, which does not have a floor for sovereigns,
- the discretion left to national supervisors to lower the risk weight for sovereigns under the standard approach to zero,
- the historical observation that default rates on highly rated governments is extremely low

(ii) Correlation trading portfolio

The 2nd consultative paper on the Trading Book Fundamental Review defines a new framework for market activities:

- The first principle is to better define trading book using a stricter and common definition compared to the current "intent-based boundary".
- Another important principle is to better capture the liquidity horizons of risk factors and define an observability condition (>24 per year) for the Expected Shortfall modelling.
- Desk eligibility to internal model will be subject to an enhanced model approval process: P&L attribution, Backtesting, Model-Independent tool.

We believe credit correlation portfolios as defined in Basel 2.5 currently meet all the criteria to be eligible to the trading book internal models.

The design of an internal model capturing "all prices risk" of correlation trading at a 1Y horizon and a 99.9% confidence level has been one of Basel 2.5 major challenges. The CRM models have nevertheless been implemented and validated by national supervisors in many jurisdictions and nearly all the related operational issues are over. Furthermore, the model is tightly benchmarked to two regulatory metrics: a floor (equal to 8%*standard approach) and 25 prescribed historical stress tests.

Besides, we would like to bring to the committee our interpretation of the RWAs benchmarking exercise performed by the Standard Implementation Group on Correlation Trading Portfolio:

1. CTP's Portfolios were incompletely described (with no specific description of hedges) so that variability in results is partly due to difference in booking of positions,
2. Comparing variability on exotic products (depending on several market parameters) and those on vanilla products is not fully appropriate,
3. Nevertheless, the variability in results is quite equivalent between CRM and IRC: 81% vs 77% as mentioned by EBA in its report,
4. Phase 2 exercise shows that the highest variability is observed on the standard approach. Its revision in BCBS 236 suggests that the same type of methodologies will underpin the new calculations.

We therefore strongly disagree with the Committee's conclusion that the use of standard approach will "narrow variability".

Furthermore, we would like to highlight some economical elements which justify maintaining CRM model:

- Current Correlation trading portfolio bears very standard positions such as index tranches. These indices are compound of the most liquid CDS single-names and the most standard maturities. The less liquid positions such as CDO square or Leverage Super Senior have already been excluded from CRM modelling.
- The activity is currently closely hedged; this aspect will however not be accurately captured by standard approach. The use of a standard approach instead of the CRM will actually provide incentive to mishedge the book to avoid excessive capital charge due to the hedge, leading to market losses that would not occur while using CRM. This is a major concern if no grandfathering condition applies to the positions currently included in the CRM model.

Proposal

To conclude, we ask the committee to reconsider its current position on CRM removal. There is no rationale justification to such prohibition not least based on the latest SIG benchmarking results. We believe therefore that the CRM should be simplified along the same lines that the IRC model and used in conjunction with the current prescribed stress tests and a recalibrated floor based on the revised standard method.

At minima, and considering the fact that the standard method is unable to cope with correlation trading activities in an economic way, a grandfathering clause needs to be introduced for existing exposures at the time of implementation of the FRTB to avoid a massive and undue increase in capital requirements.

(i) Credit valuation adjustments

First, we seek a clarification on the liquidity horizons applicable to the CVA capital charge and the potential implications on the current multiplier of the VaR on CVA should long liquidity horizons apply.

Second, we regret that the trading book fundamental review has not been considered as an opportunity to review the whole treatment of CVA risk in particular with regard to its non-credit risk dimension. The treatment of FX and IR CVA hedges suffers indeed from a lack of consistency between jurisdictions and, in many of them, from a particularly punitive treatment as those hedges are included "naked" in the market risk capital charge.

We therefore urge the Committee to revisit this issue which is plaguing the Basel 3 framework.

c. Approval process

We strongly oppose the introduction of the model-independent assessment tool for desks, and we do not understand the rationale of linking the denominator (exposure measure) of this new ratio with the exposure defined in the new leverage ratio framework. Besides, such a ratio would not be “model independent” since the capital measure (numerator) would be directly based on the internal models outputs. Furthermore, we would like to point out the lack of risk sensitivity of the proposed ratio which is supposed to identify under-capitalised desks. Indeed, this indicator could lead to detect back-to-back portfolios with no risk associated. In practical term, the model independent assessment tool is tantamount to:

- Setting a non-risk sensitive floor to the model-based capital charge.
- Threaten many desks, particularly those with low risk profile, from not being validated moving them to the punitive Standardised Approach or be obliged to mishedge their book to increase the internal model capital.

Proposal

We believe detecting under-capitalized desks for which historical data do not provide sufficient guidance on potential jump-to-liquidity premium risk is a complex exercise that necessitates a case-by-case analysis. We think the only reasonable way to deal with that is to analyze this particular risk as part of the prudent valuation “due diligence” process. Capital add-on could then be applied based on the finding of this analysis.

Concerning the approval process, the proposed desk level model validation is a pass or fail regime whereby a desk might suddenly be invalidated and the desk capital charge calculated with the Standardised Approach. We would appreciate if the regulation takes a more progressive approach, with desks which stop meeting the criteria not falling suddenly into the Standardised Approach.

Furthermore, little is said regarding the pace to which a desk which failed the criteria and meet them back will be able to return to the internal model. The regulation should set a clear path to the return to an internal model.

Finally, we have also some concerns about:

- the operational burden linked to the computation of the daily risk theoretical P&L for model approval purposes;
- The observability condition which we think should be relaxed to at least 12 observations a year to allow monthly information when it's the only observable market information available.
- the inconsistency linked to the backtesting of a risk measure (VaR 1-days) not used for regulatory capital purposes (expected shortfall taking into account varying liquidity horizons).

II. Revised Standard Approach

We strongly support the Basel Committee's objective to promote a standardized method that strikes the right balance between simplicity and risk-sensitivity and acknowledge it is not an easy task.

However we believe the proposal, as it stands, might miss the 2 targets especially because it extensively relies on the discounted cash flow PV metrics. Indeed, on one hand, most risk systems aren't currently able to outsource any cash flow information which makes the proposal risky to implement, both for large and small banks. On the other hand, we are skeptical about the ability to build a risk-sensitive capital charge from non-risk-sensitive metrics.

That being said, we are convinced that these shortcomings can be addressed with minor amendments to the Committee proposal. This is what we intend to do hereafter. Items are presented by decreasing importance order.

a. Current standardized method should be kept available

One of the reasons put forward by the TBG not to rely on sensitivities within the standardized method framework is that in some jurisdictions, some banks may find it difficult to produce sensitivities.

We would like to point out that:

- Such institutions would anyway be required to compute sensitivities for the purpose of the capitalization of non-delta optional risk.
- Implementing the cash-flow method is far more difficult than computing a PV01 according to a regulatory-prescribed methodology.

We therefore advocate that the current standardized methodology should be kept available for those banks with business models that do not require sophisticated measurement methods. This would benefit to all institutions without jeopardizing the simplicity/risk sensitivity objective sought by the Committee:

- Less sophisticated institutions with very limited trading activities would not be obliged to engage into tremendous implementation costs and could keep on relying on less risk sensitive though more conservative and well-mastered methodologies,
- The constraint of no reliance on basic sensitivities on the ground some institutions are unable to compute them would be lifted. As a result, other institutions could leverage on existing risk metrics like basic risk sensitivities (PV01, CS01) provided their definitions meet the Committee requirements.

b. Cash-Flow-based methodology versus sensitivity-based methodology

As stated above, we consider the Cash Flow method used for GIRR, CSR and FX risk as the main drawback of the proposed framework for conceptual and operational reasons.

Conceptually, the cash-flow metrics is not representative of the incurred risk. Building a risk-sensitive capital measure starting from a non-risk-sensitive metric is a Sisyphean task. It might sound reasonable for fixed cash flows but it becomes very tricky when dealing with unknown cash-flows (even more so for complex products). The non-inclusion of variable legs in the GIRR framework or the missing representation of CDS default legs in CSR in the current proposal are fairly indicative of the difficulty to handle variable cash flows within the proposed methodology. For the sake of illustration, focusing on GIRR, integrating an IR floating leg into the cash flow framework is tractable as long as the reference rate tenor matches the periodicity of the leg (e.g. 6M-IBOR set in advance and paid semi-annually). It is yet another issue when the reference rate tenor and the periodicity of the leg are unmatched (e.g. CMS 10Y paid quarterly).

We understand that the Basel Committee might have in mind to meet one of the revised standardised approach objectives, namely facilitating a consistent and comparable reporting of market risk (see section 3.1), in choosing the discounted cash flows representation. However, it is doubtful that a discounted cash flows representation will meet this objective better than sensitivities as cash flows representation might differ significantly across institutions.

Finally, the use of sensitivities would be more aligned with the treatment of options non-delta risk which make use of option deltas.

Operationally, none of current FO/risk systems rely on the concept of cash flow. As a result, the proposed methodology would require implementing new risk systems from scratch with no leverage on current infrastructure, not to mention the soaring amount of data to store.

Proposal

We advocate the use of sensitivities as the basis for the revised standardized method as they are:

- *more risk-sensitive and accurate than cash-flow projections (in line with one of the key objective of the revised standardized method stated in section 1.5),*
- *already implemented in the systems,*
- *already used and validated by an independent risk control unit (trading limits monitoring), one of the qualitative standards requirements listed in §180*
- *Less prone to model and/or operational errors than the cash-flow approach*

We understand the Committee is open to consider moving from a cash flow based approach to a sensitivity based approach provided the proposed sensitivity definition meets following criteria:

- Limited model reliance,
- Consistency of implementation across institutions,
- Availability at the instrument level

We praise the Committee wiliness to consider a sensitivity-based alternative and acknowledge that any counterproposal should have the above-mentioned attributes. We would need however a reasonable amount of time to flesh-out the details of such counter-proposal and come up with a sound definition of sensitivities. We are confident that moving from a CF-based methodology to sensitivity-based approach while preserving the key elements of offsetting, diversification and aggregation that were promoted by the TBG is achievable. This is a question of:

- Defining standardized risk sensitivities that can be uniformly implemented across industry to the satisfaction of the Basel Committee,
- Rescaling RWs and correlations since they would apply to risk sensitivities as opposed to discounted CF.

It is worth taking time to come up with sound and consensual risk sensitivity definitions, RW and correlation estimates as they will form the cornerstone of the new standardized approach.

Lastly, we note that the Trading Book Group recommends the counterproposal should capture convexity risk. We first object that the current cash flow based proposal doesn't address convexity risk and find that accounting for such additional considerations is likely to highly complicate the framework for very little benefit. We also advocate that the bulk of convexity risk is adequately captured through the non-delta optional risk proposal and consider that conservative prescribed risk weights account for the rest of it.

c. Basis risk within GIRR

From our understanding, the GIRR framework doesn't allow for initial offsetting of identical but opposite-sign positions. As a result, two identical but opposite-sign swaps would unduly generate a risk position amounting to 10% of one of the swap position which is overly conservative.

We recognize that capturing basis risk while keeping the overall framework simple is a difficult task. Our suggestion to address the above-mentioned shortcoming while sticking as much as possible to the current proposal is to slightly modify step 3 of the GIRR section (§97 of the consultative document) as described hereafter:

BCBS proposed methodology

The proposed methodology to account for GIRR basis risk is to limit the offsetting of long and short positions to 90% of the smallest in magnitude of the long and short position.

$$MV_i = (MV_i^+ + 0.9MV_i^-) \cdot \mathbf{1}_{MV_i^+ > |MV_i^-|} + (0.9MV_i^+ + MV_i^-) \cdot \mathbf{1}_{MV_i^+ < |MV_i^-|}$$

Where:

- $(T_i)_{i=1..N}$, vertices of the GIRR framework
- MV_i , the aggregated risk position allocated to vertex T_i , be it expressed in terms of discounted cash flow or sensitivity (PV01)
- MV_i^+ , the aggregated long position allocated to vertex T_i
- MV_i^- , the aggregated short position allocated to vertex T_i

If this solution has the merit of being simple, it lacks risk sensitivity and might overstate basis risk by far. Indeed, it doesn't recognise the lower basis risk carried by positions with close underlying reference rates. Hence, two positions arising from swaps with identical reference rates are allowed to offset only partially whereas a full offset is warranted.

Proposal

Basis risk typically arises from positions with different underlying reference rates (e.g. a leg paying CMS 10Y versus a leg paying IBOR 6M)¹. Risk arising from maturity mismatch (fixing risk) is already covered to a large extent through the exposure vertex assignment (more vertices could be introduced for an even finer capture of maturity mismatch risk).

We propose to capture basis risk by bucketing positions according to their reference rate tenor.

Denoting:

- $(R_j)_{j=1..M}$, categories of reference rate tenors and assuming each risk position (again either expressed as a discounted CF or sensitivity) has been previously allocated to one category
- $MV_{i,j}$, the aggregated risk position allocated to vertex T_i and tenor category R_j

For instance:

	Reference Rate tenor R	Examples
$R1$	$R < 1 \text{ Month}$	OIS
$R2$	$1 \text{ month} \leq R \leq 12 \text{ Months}$	IBOR legs
$R3$	$R > 1 \text{ Year}$	CMS legs

Then,

- *Within a single tenor category R_j , long and short positions fully offset:*

$$\forall i, j, \quad MV_{i,j} = MV_{i,j}^+ + MV_{i,j}^-$$
- *Across tenor categories, long and short positions do not offset in full to account for basis risk. The smaller in magnitude of the long and short positions is multiplied by a factor $\alpha < 1$ ($\alpha=0.9$ in BCBS proposal).*

$$\forall i \quad MV_i^+ = \sum_j \text{Max}\{0, MV_{i,j}\}, \quad MV_i^- = \sum_j \text{Min}\{0, MV_{i,j}\}$$

$$MV_i = \begin{cases} MV_i^+ \geq |MV_i^-| & \Rightarrow MV_i^+ + 0.9 \cdot MV_i^- \\ MV_i^+ < |MV_i^-| & \Rightarrow 0.9 \cdot MV_i^+ + MV_i^- \end{cases}$$

The above proposal could be further enhanced by adding more granularity in the definition of reference rate tenors or by having a factor alpha dependent on the pair of reference rate tenors, with higher alpha when basis risk is lower, lower alpha when basis risk is higher. Please see Appendix 2 for more details on a more risk sensitive model.

¹ Advanced models will typically capture basis risk by defining one reference yield curve (e.g. built from futures and swap instruments) then defining any rate by reference to the reference yield curve plus a basis risk.

d. Credit risk

Credit Spread risk (Securitization exposures)

The regulation for Capital requirements should follow some principles. The most important one probably is that the level of capital requirement increases as the amount of risk taken increases and, conversely, that capital requirement decreases as the level of risk decreases. Not fulfilling this principle would lead to the undesirable consequence of inciting banks to take on more risks or not hedge existing risks.

Unfortunately, the Standardised Approach for securitization credit spread risk proposal does not follow this principle as the following examples illustrate:

Example 1: Index tranches delta hedged by an index

The below portfolio bears little if any risk:

- Long position in a 0-x index tranche
- Long position in a x-100 index tranche
- Short position in an index

As the portfolio is bearing hardly any risk, it should be attributed a tiny if at all capital charge. However, the application of the quadratic formula of paragraph 121 will lead to a sizable Capital charge.

Example 2: A bespoke tranche delta hedged with an index

A bespoke tranche can be credit delta hedged with an index.

- Long position in a bespoke tranche
- Short position in an index

Since this portfolio is delta hedged it should bear a lower Capital charge than the bespoke tranche on its own. However, given that the proposed applicable correlation is 0% (only diversification is recognised, no hedging), the delta hedged position end up with a higher Capital charge. Hence, the incentive given by the regulation is to keep the position open and to bear the full risk associated with it.

Example 3: a bespoke tranche delta hedged by an index tranche

The bespoke tranche is delta hedged with an index tranche with the additional benefit of partially hedging the base correlation.

- Long position in a bespoke tranche
- Short position in an index tranche

This portfolio bears a lower risk than the second example portfolio. The proposed treatment of securitisation credit spread risk in the Standardised Approach will however make no distinction and the end Capital charge will be identical than the one of the second example. Again, is demonstrated the lack of incentives given to banks to adequately hedge under the current proposal.

In conclusion, the proposal as it stands doesn't meet the principle formulated above, wrongly incentivising banks to mishedge their book. Devising an adequate standardised approach for securitisations will certainly prove very difficult and will take time. This is an additional reason to leave open the possibility for correlation trading portfolio to be apprehended in the internal model framework as we already advocated before.

We note as well that **a separate consultation is taking place on the securitisation framework in the banking book (BCBS-269) which ought to interact with the treatment of securitisation in the trading book.** The overall framework for securitisation would probably benefit from a close coordination between the two streams.

Proposal

Given all the above, we reiterate our request for the committee to reconsider its position regarding CRM and allow it to be treated within the internal model approach.

Finally, the current implementation proposal of the securitisations credit spread risk Capital charge could be improved in several ways.

Firstly, the function f of paragraph 117 calibration should be the object of further analyses so as to adequately reflect the spread delta of tranches.

Secondly, the correlation factors of paragraph 122 should also be reviewed. In our view, they are very penalising, especially when it comes to the correlation between an index tranche and the index itself: as it stands it recognises hedging with a low 40% correlation.

Besides, we believe that the correlations between cash flows of same sign are set incorrectly: correlation should be higher as likeness of underlying names increase. Hence "same underlying names" (correlation currently set to 80%) should get a higher correlation than "different underlying names" correlation (currently set to 100%).

Also, the 80% underlying pools overlap requirement to get attributed the correlations of the first column in the table of paragraph 122 is in our view set to high. There is also an important cliff effect between hedges which meet this requirement from those which do not. We therefore are in the view that more progressivity, with the introduction of more overlap buckets for instance, should be considered.

Finally, we recommend that banks are given the choice to decompose an index into tranches or inversely to pool single names credit derivatives together, in such permitting a better recognition of hedging. For instance, if in the example 1, the index could have been decomposed, the absence of risk would have been recognised while in examples 2 and 3 hedging would have been better accounted for.

Proposal

The current proposed securitisations CSR Capital charge could be improved by better calibrating the f function and the correlations.

In particular correlations should:

- *allow for more hedging*
- *set in ascending order of similarity*
- *generate fewer cliff effects*

Default risk (Non securitization exposures)

We seek further clarification from the TBG on the definition of Jump-to-Default, in particular with respect to optional products like equity options. § 57 of the consultative paper seems to suggest that for equity options, only the delta-equivalent position in the underlying shall be input in the Jump-to-Default formula (see §147). Can the Committee confirm our understanding is correct?

Also, for a given asset class category, short positions ability to offset long positions is limited by the WtS factor (paragraph 151). Though we accept that offsetting is only partial, we believe that the WtS factor is defined too conservatively: short positions in equal amount to long positions reduce the exposure by only half.

Proposal

We recommend amending the WtS factor to recognize a higher level of offsetting. A parameterised formula such as the one proposed in the annex will allow to calibrate the appropriate level of offsetting pending the QIS results.

Furthermore, we understand from the worked examples on the revised standardized approach circulated by the TBG on November 29th 2013 that no hedging/diversification benefit is to be recognized across issuer categories (Corporate, Sovereign, Munis...). We consider it is overly conservative and does not incentivize institutions to diversify their exposures.

We propose to take into account observed correlations across issuer categories using the following simple formula:

$$DF \text{ Capital} = \sqrt{\sum_i DF_i^2 + \sum_i \sum_{j \neq i} \rho_{i,j} \cdot DF_i \cdot DF_j}$$

Where:

- DF_i is the stand-alone default risk capital charge for issuer category i ,
- $\rho_{i,j}$ are regulatory-prescribed correlations between issuer categories

Default risk (Securitization exposures)

We first note that proposed LGD in the Jump-to-Default formula are punitive and inconsistent with historical observations. We therefore believe that the proposed LGD should be reviewed.

Besides, we deplore the absence of worked example to illustrate the process to compute the default risk capital charge on securitisation exposures. Offsetting rules are clear but hedging/diversification rules are not.

e. Equity risk

We welcome the proposed new standardized capital charge for equity risk. We just have reservations about the inclusion of the “market capitalisation” criteria in the bucketing.

Indeed, the market capitalisation information might be difficult to retrieve. Moreover, it is volatile which could induce undesired cliff effects due to some equity positions moving from a bucket to another as their market capitalisations yo-yo around the suggested USD 2 Bn barrier.

We therefore suggest bucketing positions depending on their inclusion or not in large equity indices rather than according to their market capitalisation.

III. The revised trading book /banking book boundary

We welcome the new boundary proposal which seeks to take into account the intent to trade and brings more clarity on what is going to be on one side and on the other side. Furthermore we welcome the approach consisting on putting on banks the burden of the proof as far as the justification of the prudential classification is concerned. We want to stress that it has always been the policy that drove prudential classification for most French banks.

We are however concerned by the following aspects:

- We think that the introduction of a general presumption list for trading and banking book will induce a very important compliance workload as many deviations from this presumption list are expected.

For example, the following situations represent cases where the general presumption would lead to a trading book classification whereas those positions clearly belong to the banking book:

- Instruments held as strategic investments (e.g. listed equities)
 - Hedges of instruments belonging to the banking book and whose risks are managed together with the hedged instruments (e.g. Options to hedge variable mortgages): the proposal does not explicitly address those cases We think that the classification should apply consistently for the hedged and the hedging instruments and would welcome the clarification that such derivatives hedging banking book exposures should be classified in the banking book.
 - Basel III-LCR-required liquidity buffer, a portion of which can be built of collective investment units (CIU) or listed equities: It should be made clear that assets that are invested in for the liquidity buffer are expected to be classified as Prudential Banking Book when they are not used to manage market risks from transactions from the Prudential Trading Book
- We observe that in case a systematic prior approval from the supervisor is required, the process might generate important delays for:
- The implementation of the new framework for the whole existing activities
 - The launch of new activities or new products
- We therefore suggest that the Committee allows for simplified documentation requirements for situations which will constitute generally admitted deviations from the presumption list and, in most obvious cases (see list below), replaces the ex-ante notification by ex-post information to the supervisor.
- For cases necessitating prior supervisory approval, the Committee should consider imposing a maximum timeline for the supervisory review and response.
- The proposal seems also very restrictive regarding the valuation frequency required for an instrument to be eligible to the trading book. If daily valuation cannot be performed, a weekly frequency should still be considered as acceptable for certain exposures (funds with weekly NAV...)
- We believe that the surcharge for switching instruments shall be calculated under Pillar 2. In practice, moving between the regulatory books should be very rare. Moreover, each switch shall be documented and approved preliminary by internal review and supervisor. Consequently, non-arbitrage switches should be allowed. If the goal of the supervisor is to penalize arbitrage transactions, this should be achieved by imposing surcharge under Pillar 2.
- We would like confirmation that the new trading / banking boundary is no longer based on accounting classification. Otherwise, accounting standards evolutions should be considered since “Held For Trading” category will most likely be removed with IFRS9 application. Only a fair value through P&L category should remain. §11 a) of annex 1 would have no substance.

Expected deviations from the general presumption list

Deviation	Description
Derivatives under hedge accounting	<p>In IFRS, derivative instruments are <i>always</i> accounted for their changes in their market value through P&L. When they are accounted for hedging instruments, their changes in market value are offset by the changes in values of the so-called hedged item (hedged risk component of the hedged items). In the balance sheet, the hedged item is accounted next to the hedged item (fair value hedge), or in Other Comprehensive Income (cash flow hedge, net investment hedge).</p> <p>It should be made clear that the presumption does <i>not</i> apply to derivatives <i>and</i> hedged items that are accounted for in a hedging relationship (hedge accounting).</p>
Derivatives accounted for <i>Held-for-Trading</i> since hedge accounting is not possible	<p>In IFRS, some economic hedging derivatives can't be accounted for hedging instruments due to limitations of the accounting standards.</p> <p>This applies notably when:</p> <ul style="list-style-type: none"> the hedged item is: non maturing asset or liability (such as core deposits, savings accounts...), sub-libor items (such as core deposit, saving accounts, sub libor debt instrument...), equity instrument (ex: Tier two fixed rate debt), hedged item that is internal to the consolidated Group. the hedged risk can't be accounting hedged (equity risk, commodity risk). For instance, this applies to equity-linked debt hedged with an offsetting equity linked swaps (cf next listed deviation) the burden to account for hedging relationship exceeds the benefit of obtaining it (due to intense workload in the ongoing demonstration of the hedging effectiveness). Some banks then elect to account for their hedging derivatives <p>Subject to demonstrating that the derivatives mitigate risks from the banking book, and that their intent is not a trading intent, those derivatives should be expected to deviate from the default prudential trading classification.</p>
Risk Components from Hedging instruments that are not recognized in the hedging relationship	<p>In IFRS, a hedging relationship is based on the identification of <i>specific</i> risk components that are hedged. The <i>other</i> risk components in the hedging instruments are not part of the hedging relationship, which leads them to be accounted for through P&L.</p> <p>This applies notably to:</p> <ul style="list-style-type: none"> the counterparty risk of the hedging instrument basis risk between the hedging instruments and the hedged component (such as the basis due to the collateralization of the hedging instruments that does apply to the hedged component, or the cross currency swap spread when hedging a debt instrument for its rate risk with a cross currency swap)

	<ul style="list-style-type: none"> time value of options that may be excluded from the hedging relationship, in which case the changes in time value is accounted through P&L. <p>It should be made clear that the boundary applies at instrument level, and not by risk factor and that residual ineffectiveness of prudential banking book transactions are considered in the prudential banking book.</p>
Basel III-LCR-required liquidity buffer	<p>Basel III LCR requires maintaining a liquidity buffer with regular transactions to demonstrate market liquidity of the securities. This could lead a portion of the LCR –buffer to be accounted for Held-for-Trading even though the intent is <i>not</i> a trading intent.</p> <p>It should be made clear that, subject to demonstrating that those securities are not held with a trading intent, are not managed together with transactions in the prudential trading book and are held primarily to build up and maintain a liquidity buffer, those assets should not be considered in the prudential trading book. This should apply to listed equities and collective investment units that are eligible to the LCR-buffer.</p>
Long term investments in listed equity	<p>Long-term investments in listed equity are generally part of strategic participations and hold on a long term basis. Those exposures should not be considered in the prudential trading book.</p>
Embedded options	<p>Our understanding is that ‘options’ means ‘option derivatives’.</p> <p>Indeed, should it cover all options, including embedded options, it would basically presume the most of the balance sheet in the Prudential Trading Book as most of loans (including mortgages, instalment loans, commercial loans...) and most of deposits (term deposits, savings deposits...) have early termination embedded options.</p> <p>Most probably, it is not the intent of the BCBS to presume the entire balance sheet as Prudential Trading Book.</p>
Options already covered by instruments	<p>Option derivatives have no reason to be discriminated against compared to other derivatives. Hence, option derivatives that are accounted for hedging instruments should not be presumed as in the Prudential Trading Book.</p> <p>As an illustration, collars (buy floor / sell cap, or buy cap/sell floor) and swaptions are instruments eligible to hedge accounting, subject to strict designation and effectiveness test requirements.</p> <p>In our opinion, ‘option derivative’-presumption is not necessary as already covered by the presumption on <i>instruments accounted for trading asset or liability</i>.</p>

IV. Other uses of the standard approach

The possible introduction of a floor based on the RSA

We strongly oppose the principle of using floors and/or surcharges given the very damaging impact on incentives to enhance internal models and properly manage the risks.

Disclosure requirements

We consider the disclosure requirements, in particular, the standard-approach capital calculation at desk level as too detailed and granular.

We do not find appropriate that bank disclose their organisation and span of activities which are a matter of inner strategy, and we think that in absence of a standardized vocabulary, it might induce misunderstanding and confusion on the released figures by the financial analysts and other users of banks' publications.

We also fear that the standard capital charge would become the only considered information, even though it does not reflect the capitalization of the bank and the better measurement of the risks through internal models.

V. Appendix

Trended markets and asymmetrical distributions

The study focused on one underlying per asset class:

- Eurostoxx for Equity (EQY)
- EUR/USD rate for Foreign Exchange (FX)
- Euribor 6 months for Interest Rate (IR)
- Crude oil 1-month for Commodity (CTY)
- Itraxx Main for Credit (CR)

Vectors of 260 returns have been computed on one year stressed periods (2008 and 2009 often used by banks for SVaR computation) and on a current period. Each time, we compare one-day returns rescaled by the liquidity horizons (LH) prescribed by BCBS with the overlapping long-horizon returns proposed by the Basel Committee (overlapping returns having the same starting dates for all risk factors).

The results are as follows:

▪ 2008 percentage of positive returns:

	EQY	FX	IR	CTY	CR
260 one-day returns rescaled by the LH	45.8%	50.4%	62.3%	46.9%	55.8%
260 overlapping long-horizon returns	37.3%	45.4%	65.8%	49.6%	75.4%

▪ **2009 percentage of positive returns:**

	EQY	FX	IR	CTY	CR
260 one-day returns rescaled by the LH	51.5%	50.8%	35.0%	55.8%	48.5%
260 overlapping long-horizon returns	65.0%	60.8%	10.0%	60.0%	11.2%

▪ **Current period (ending at 30/09/2013) percentage of positive returns:**

	EQY	FX	IR	CTY	CR
260 one-day returns rescaled by the LH	52.3%	52.3%	51.9%	50.8%	48.5%
260 overlapping long-horizon returns	56.5%	59.6%	17.3%	45.4%	20.8%

Comparison of variability implying by overlapping returns with rescaled one day returns

Based on the same approach than previously (Cf. supra), we compare here the variability generated by overlapping returns with variability generated with one day rescaled returns through expected shortfall indicator (2.5% and 97.5%):

The results are as follows:

• **2008**

▪ Expected Shortfall 2.5%

	EQY	FX	IR	CTY	CR
260 one-day returns rescaled by the LH	-21.8%	-9.7%	-14.0%	-37.7%	-122.1%
260 overlapping long-horizon returns	-18.3%	-11.5%	-25.4%	-35.8%	-46.0%

▪ Expected Shortfall 97.5%

	EQY	FX	IR	CTY	CR
260 one-day returns rescaled by the LH	25.2%	12.0%	8.7%	45.4%	142.7%
260 overlapping long-horizon returns	10.1%	11.9%	7.8%	21.5%	105.7%

• **2009**

▪ Expected Shortfall 2.5%

	EQY	FX	IR	CTY	CR
260 one-day returns rescaled by the LH	-14.2%	-8.0%	-20.2%	-30.6%	-53.1%
260 overlapping long-horizon returns	-14.3%	-6.3%	-24.5%	-14.4%	-45.3%

- Expected Shortfall 97.5%

	EQY	FX	IR	CTY	CR
260 one-day returns rescaled by the LH	14.1%	8.5%	18.4%	31.1%	49.7%
260 overlapping long-horizon returns	12.7%	7.4%	2.3%	26.2%	11.1%

- **Current period (ending at 30/09/2013)**

- Expected Shortfall 2.5%

	EQY	FX	IR	CTY	CR
260 one-day returns rescaled by the LH	-8.6%	-5.3%	-11.7%	-13.4%	-50.0%
260 overlapping long-horizon returns	-5.2%	-5.4%	-25.3%	-13.8%	-31.7%

- Expected Shortfall 97.5%

	EQY	FX	IR	CTY	CR
260 one-day returns rescaled by the LH	8.7%	5.4%	10.6%	12.7%	61.3%
260 overlapping long-horizon returns	9.4%	5.3%	17.1%	14.9%	24.3%

A more risk sensitive treatment of GIRR basis risk

The basis risk between categories of reference rates may differ depending on the reference rates category pair. For those pairs of reference rates categories with lower basis risk, a higher alpha should apply. On the contrary, pairs of reference rates categories with higher basis risk should be assigned a lower alpha.

Hence, we could define an alpha factor per reference rates category pairs. If we order categories in rising reference rates tenors, we can proceed iteratively as follow:

$$MV_{i,1-2} = \begin{cases} MV_{i,1} + MV_{i,2} & \text{if } MV_{i,1} \text{ and } MV_{i,2} \text{ have same signs} \\ MV_{i,1} + \alpha_1 \cdot MV_{i,2} & \text{if } |MV_{i,1}| > |MV_{i,2}| \\ \alpha_1 \cdot MV_{i,1} + MV_{i,2} & \text{otherwise} \end{cases}$$

$$MV_{i,1-3} = \begin{cases} MV_{i,3} + MV_{i,1-2} & \text{if } MV_{i,3} \text{ and } MV_{i,1-2} \text{ have same signs} \\ MV_{i,3} + \alpha_2 \cdot MV_{i,1-2} & \text{if } |MV_{i,3}| > |MV_{i,1-2}| \\ \alpha_2 \cdot MV_{i,3} + MV_{i,1-2} & \text{otherwise} \end{cases}$$

...

$$MV_i = MV_{i,1-M}$$

Although imperfect, the proposed methodology enables to capture more precisely the basis risk that arises within GIRR.

A third treatment of GIRR basis risk

This proposal recognizes a full netting for all the sensitivities/cash flows referring to a same reference rate as in the 2 previous propositions (the main one and the above one), but manages the basis risk not as a partial netting between a long position and a short position having different reference rates inside a time bucket, but at the final diversification step. Modifications in the CP2 would be:

- §94: cash flows / sensitivities are assigned vertex points separately for each currency and reference tenor.

- §97: There is a full netting.

- §100: Same formula,

$$GIRR\ Capital = \sqrt{\sum_{b=1}^B K_b^2 + \sum_{b=1}^B \sum_{c \neq b}^B \gamma_{bc} K_b K_c}$$

, but:

- b is a couple currency + reference rate
- The correlation coefficient γ_{bc} is 0.5 if b and c have got a different currency, and is greater if they have same currency (but different reference rate of course). This value is to be defined/calibrated. Even as in the preceding proposition this value could be modulated according to the reference rate pairs (e.g. a pair of Euribor rates could have a greater correlation than a pair of a Euribor rate and an OIS rate).

Non-securitisation default risk: accounting for diversification

The BCBS proposal for non-securitisation default risk allows only partial offsetting of long positions by short positions within an asset class. Though we agree on the principle we believe that the proposed approach has two drawbacks:

- It is set too conservatively: a portfolio made of long and short positions in equal amounts results in an overall exposure of half the one of the long positions on their own.
- The proposed formula is not parameterised which does not allow for a better calibration of the offsetting benefit pending the QIS.

We would therefore suggest using an alternative offsetting factor which allows for more offsetting and can be calibrated at a later stage.

The Basel Committee proposal use the offsetting factor WtS expressed as:

$$WtS = \frac{\sum JTD_{long}}{\sum JTD_{long} + \sum |JTD_{short}|}$$

It could be rewritten in term of the ratio of short positions over long positions:

$$\text{with } x = \frac{\sum |JTD_{short}|}{\sum JTD_{long}}, WtS(x) = \frac{1}{1+x}$$

It can be seen that a portfolio with short positions in equal amount than long positions, i.e. $x=1$, lead to a factor $WtS = 0.5$ (only 50% of offsetting).

Recognising that the $WtS(x)$ parameter must have the below properties:

- $WtS(x)$ is a declining function of x
- At the boundaries WtS takes the following values: $WtS(0) = 1$ and $WtS(+\infty)=0$

We propose the alternative formulas below, function of a parameter γ to be calibrated:

If for balanced portfolio WtS is between 0.5 and 0.63 than the formula could be

$$WtS(x) = \frac{1}{x} \cdot \left[1 - \frac{1}{\left(1 + \frac{x}{\gamma}\right)^\gamma} \right] \text{ with } 1 \leq \gamma < +\infty.$$

Hence, for instance, with $\gamma=2$, $WtS(1) = 0.56$.

However this formula does not allow offsetting above 63% for a balance portfolio as when γ tends toward infinite, the expression of the formula tends toward

$$WtS(x) = \frac{1}{x} \cdot [1 - \exp(-x)].$$

If further analysis show that a balance portfolio exhibit a higher level of offsetting, then the expression of WtS as a function of x could be:

$$WtS(x) = \frac{1}{x} \cdot [1 - \exp(-x \cdot (1 + \gamma \cdot x))] \text{ with } 0 \leq \gamma < +\infty.$$

For instance, with $\gamma=0.5$ $WtS(1)=0.78$.