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FBF RESPONSE TO BCBS CONSULTATIVE DOCUMENT RELATIVE TO FUNDAMENTAL REVIEW OF THE TRADING BOOK: OUTSTANDING ISSUES

The French Banking Federation (FBF) represents the interests of the banking industry in France. Its membership is composed of all credit institutions authorized as banks and doing business in France, i.e. more than 390 commercial, cooperative and mutual banks. FBF member banks have more than 38,000 permanent branches in France. They employ 370,000 people in France and around the world, and service 48 million customers.

The FBF welcomes the third 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 understand that this third consultative document aims at providing new proposals regarding some outstanding issues which are still under consideration by the Basel Committee. Notably, in the context of the forthcoming discussion on interest rate risk in the banking book, the proposal of prudential treatment relative to Internal Risk Transfer (IRT) operations between banking book and trading book; some risk factors insufficiently captured in the Sensitivities Based Approach (SBA) ; and simpler method for incorporating the concept of liquidity horizons in Internal Model Approach. We think BCBS has already done a thorough review of the framework, and we welcome the consideration of the new Standardized Approach now based on risk factors sensitivities instead of discounted cash flows. However in the context of new Basel capital floor, which would be based in a certain extent on Standardized Approaches, it is of foremost importance that the final calibration respect a certain risk sensitivity, simplicity and allows for comparability.

For the avoidance of doubt, we would like to stress though that despite all improvements incorporated in this SBA to be more risk-sensitive, it has clearly neither the granularity and the precision of Internal Model Approach (IMA), nor the flexibility required to make sure that the embedded measurements are at all-time adapted to the material risks of each and every banks. As a consequence, we urge the Committee to reconfirm the overarching principle according to which internal models should remain on top of the hierarchy of market risk capital approaches, as the only ones really fitting risk profiles and business models of institutions. The model approval process put in place in the FRTB, around the validation of IMA through P&L explanation and backtesting, should give further guarantees to the regulator about the quality of internal models and thus make it a more reliable risk metric than the SA. Trust in IMA should indeed be reinforced by a more granular assessment coupled with a more detailed analysis of model performance at trading desks levels.

QUESTION 1: What are your views on the specific refinements described in the three sections of this consultative document?

I. Internal risk transfers between the banking book and the trading book

“The Committee invites feedback on the proposed treatment of internal risk transfers of equity risk, and the two options set out for internal risk transfers of GIRR. Importantly, the Committee will aim towards compatibility between the prospective treatment of internal risk transfers of GIRR and the capital treatment of interest rate risk in the banking book.”

There are two suggested options to recognize *IRT* in the Banking Book (*BB*) for GIRR (general interest risk rate) :

- *Option 1* ('core approach'): *IRT* should be directly offset with an external transaction on a one-to-one / back-to-back transaction ;
- *Option 2*: *IRT* should be done with approved trading book (*TB*) desks in virtual portfolios that would be capitalized in the market risk framework on a stand-alone basis, i.e. separate from any other type of risk position in the *TB*.

We provide below the main drawbacks of the two suggested options and **recommends adopting an *Option 2-bis* approach** that we consider would meet BCBS concerns while ensuring consistency and efficiency within bank's organization.

Internal Risk Transfer practice

Derivatives are needed and necessary instruments to mitigate IRRBB. When the bank offers market making services on those derivatives to its customers, it is usual that the function in charge of mitigating IRRBB (Asset and Liability Management and/or Treasury) executes all or some of its risk mitigating derivative instruments with the market making desk of its own bank. In this process, ALM Treasury is considered like an external customer by the market making desk it transacts with. Hence Transactions are executed at arms-length.

For the bank, such IRT process is efficient since it enables to minimize the number of desks facing the market, to benefit from the diversification effects between customers' transactions and ALM Treasury's transactions, both of which contribute to minimize the number of transactions in the market and the resulting counterparty risk as well as variation and initial margins required to mitigate it and transaction direct costs due to bid-ask spread.

The market making desks are subject to a risk management framework, notably limits to their market risk exposures that de facto force them to almost fully offset the risks they are loading through their customers' transactions (including ALM Treasury's transactions) with external transactions. In the jurisdictions that are implementing structural reforms, those limits are becoming extremely stringent as those reforms seek to prohibit or to segregate in dedicated structures all proprietary or directional positions.

In our opinion, there are no arbitrages of the boundary through IRT. The IRT is only a way to mitigate the IRRBB. Any imperfect external offsetting is already recognised in the trading book market risk framework and in the banking book interest rate risk management under Pillar II.

Drawbacks of Option 1 and Option 2

Option 1 would basically oblige ALM Treasury to mitigate all their IRRBB with external counterparts, which would decrease the bank's ability to benefit from natural diversification effects and would increase its counterparty risk and the related liquidity requirement (through variation and initial margins). In jurisdiction where loan is intermediated by banks and kept on their balance sheet, and where retail customer is protected by the bank against the IR risk, those two consequences would be very detrimental to the IRRBB mitigation strategy as they are highly cost ineffective.

Beyond the increase of counterparty risk and the number of derivative transactions impacting the leverage ratio, option 2 is going against other regulatory objectives such as those related to trade compression mechanisms. As an example, the European Market Infrastructure Regulation "EMIR" requires banks to cancel a number of offsetting transactions in order to reduce the amount of outstanding trades. For this to work, trades where the bank is long need to be offset with trades for which the bank is short in order to keep an overall limited exposure. However, splitting the trading book between a book facing the banking book and another facing the other clients will result in making compression nearly impossible. Effectively, trades will be chosen in each portfolio for compression leaving each portfolio partially un-hedged. This would result in a considerable capital surcharge even if, at the bank level, the position is perfectly squared.

Eventually we want to stress the operational burden and consecutive increased operational risk for all market participants, and not only for banks.

To some extent, *Option 2* would have the very same detrimental impacts as *Option 1* since, with a portfolio limited to ALM Treasury's transactions, there would basically be no possible diversification benefit with trading book: *Option 2* boils down to *Option 1*.

Therefore we strongly recommend the BCBS to contemplate an Option 2-bis

Should it be deemed necessary by the BCBS, we recommend modifying *Option 2* to derive *Option 2-bis* by leveraging on the structural reforms frameworks, such as the Volcker Rule, that prohibit *proprietary trading*. *Option 2bis* would specify the instruments and desks that can be used for *IRT* while not limiting these desks only to *IRT* activity. It would allow for the transparency and auditability of the centralizing book, without deteriorating the liquidity, cost control and service offering for the banks.

Option 2-bis is described below:

In order to be recognized in the prudential framework, *IRT*-transaction should be executed with a ***IRT-eligible TB-desk***:

- the *IRT*-transaction seen from the *TB* view is recognized in the *TB* market risk framework together with the other *TB* transactions
- the *IRT*-transaction seen from the *BB* view is recognized in the *BB* prudential framework

Then, each *IRT-eligible TB-desk* (***‘the desk’***) should:

- list the financial instruments (***‘the instruments’***) *the desk* on which can act as market maker for its customers (including internal customers)
- meet the below listed requirements on an ongoing basis:
 - *The desk* routinely stands ready to and actually executes *the instruments*, in both directions, and is willing and available to quote or enter into long and short positions in *the instruments*, in commercially reasonable amounts and throughout market cycles on a basis appropriate for the liquidity, maturity, and depth of the market for *the instruments*.
 - The activity of *the desk* is limited to offering market making and/or client services for *the instruments* to its customers and mitigating the risks from this activity.
 - The bank has established and implements, maintains, and enforces written policies procedures, internal controls, analyses and independent reviews identifying and addressing:
 - The financial instruments *the desk* stands ready to enter into ;
 - The techniques and strategies *the desk* may use to manage the risks of its activity and the personnel responsible for ensuring that the actions taken by *the desk* to mitigate the risks.
 - The actions *the desk* take to mitigate promptly the risks of its financial exposure consistent with the limits; the products, instruments, and exposures *the desk* may use for risk management purposes.
 - The actions should not be intended to create a market risk exposure.
 - Limits applicable to *the desk* should be based and consistent with the nature and amount of the market making activity offered by *the desk* :
 - the amount, types, and risks of its activities;
 - the amount, types, and risks of the products, instruments, and exposures *the desk* may use for risk management purposes;
 - the level of exposures to relevant risk factors from its financial exposure.

II. The revised standardised approach for market risk

We understand the aim of providing a method for calculating capital requirements for banks with a level of trading activity that does not require sophisticated measurement of risk, and providing a fallback in the event that a bank's internal model is deemed inadequate. However, given the recent publication of the BCBS consultation paper on Capital floors, we believe that the question of the potential use of SA as an add-on or floor to internal-models-based charge is a wider concern that should not be covered by the FRTB.

We welcome the introduction of a new method in this third consultative paper, based on price and rate sensitivities available in systems as inputs into the different asset class treatments. Indeed the industry was very concerned by the previous proposed method based on discounted cash flows. However some improvements need still to be done in order to achieve a right calibration.

In the following we go through several issues we have identified in the last CP3 instructions.

1. Treatment of basis risk

Issues related to asymmetric correlations

The SBA framework addresses the issue of time changing correlations and the resulting uncertainty of hedging effects and diversification benefits by setting exposures pairwise correlation asymmetry: same sign exposures are attributed a higher correlation than different sign exposures.

If this approach has the merit of being simple it has also several shortcomings that were made particularly evident when correlation asymmetry and scaling factors came into interaction but that are really consubstantial to the method:

- It consists in selecting for each pair of risk factors the worse possible correlation parameter, the one that would result in the highest capital charge. This is inconsistent with an expected shortfall measure for which the global correlation structure is calibrated regardless of positions, and to which the SBA should constitute a credible fall-back.
- The correlation matrix resulting from pairwise worst cases might be unrealistic whereby higher correlated risk factors are attributed a lower correlation than lower correlated risk factors:
Example: On a given issuer, long credit spread exposure on the 1Y and 3Y tenors, short on the 2Y tenor result in distant tenor exposures (1Y with 3Y) being highly correlated (90%) while close tenor exposures (1Y with 2Y and 2Y with 3Y) having lower correlations (60%).
- The risk measure lack risk sensitivity and the resulting capital charge is overstated.
 - A granular well hedged portfolio has its capital charge floored at a high level;
 - The capital charge has a degree of proportionality to the number of risk factors.

A scenario-based method

We recognise that time changing correlations risk should be captured. Unlike risk weights (shifts), it could not be achieved by a conservative calibration: a directional portfolio will be more at risk with high correlations while a hedged portfolio will be more at risk with low correlations.

Correlations tend to move consistently, during period of stresses correlations increase while in calm market conditions, correlations decrease. Hence the idea to capture changing correlation levels through scenarios analysis.

For each of the individual SBA non-default capital charges¹, **the charge could be taken as the highest of the calculations using a single matrix with high correlation and a single matrix with low correlations.**

$$SBA\ Charge = \text{Max} \left(\begin{array}{l} \text{Charge with} \\ \text{high correlations} \end{array} ; \begin{array}{l} \text{Charge with} \\ \text{low correlations} \end{array} \right)$$

Within an asset class all intra bucket correlations will move up or down in a broad movement. It is less clear as to whether inter buckets correlations will follow the same trend but the scenarios based method is addressing only the intra-buckets correlations (i.e. ρ_{kl} [instructions §53(c)]) while the inter-buckets correlations remain those of the CP3 (i.e. γ_{bc} [instructions §53(d)]). Therefore the scenarios based method should be applied at the asset class level (we are not advocating applying the method on the whole portfolio, across asset classes level as it would breach the SBA intention not to recognise diversification between asset classes).

This method has several benefits:

- It fulfils the TBG objective of limiting hedging and diversification. The asymmetric correlations approach is preserved but is not done on a pairwise basis;
- It is a minor adaptation to the current framework and prone to rapid implementation (can be easily tested on QIS3 figures);
- It effectively reduces the overall SBA complexity by removing the need to check on exposures sign two by two ;
- It does not introduce any new parameters and requires no further calibration: it fully relies on the current set of parameters;
- It is consistent with an internal model approach. Its outcome is proportional to the risk taken as opposed to the current CP3 framework which is partly volume driven. As such it constitutes a credible fall-back to internal models.

¹ Delta risk, vega risk and curvature risk, for each asset class.

2. Treatment of vega risk

Model

Paragraph §63 in the QIS does not clearly specify what kind of vega has to be considered but we may guess Black volatilities should be taken. Indeed on most markets Black volatilities are the direct inputs of models and those ones are thus able to compute sensitivities on the points of the Black volatility surface.

But on interest rates options prices are rather modeled according to specific models and most banks have a model more or less derived from SABR, which has got 3 parameters to adjust the smile. Thus those banks calculate sensitivities to the parameters of those models and not on Black volatilities.

Negative or very low forward interest rates are another model issue since they don't allow a Black model and ask to consider shifted rates: A solution could be to consider Black for currencies which have no negative forward rates and a shifted Black for currencies which have some negative forward rates (CHF for example). Indeed for a small shift (0.25% for example), the sensitivity of the GIRR Vega to the choice of the shift is small.

Strikes

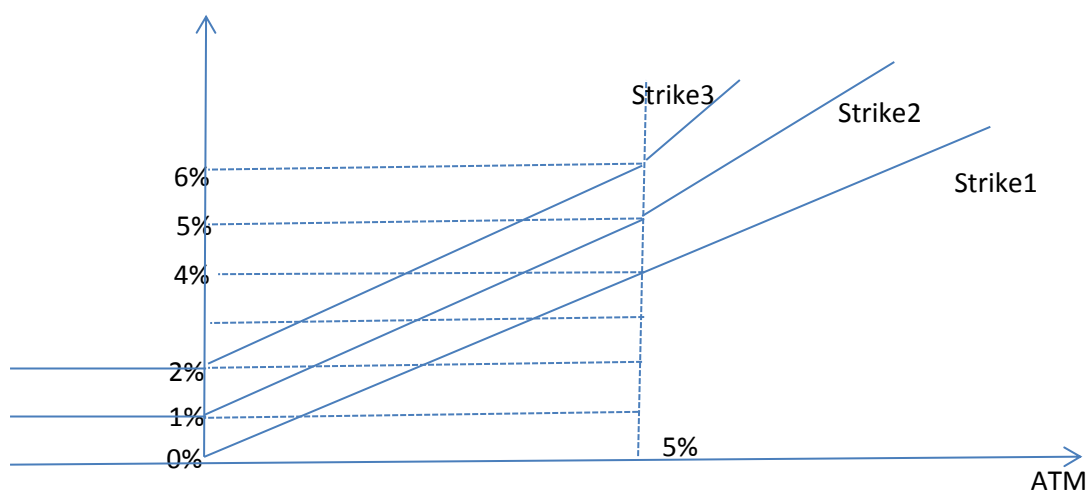
The CP3 paragraph §63 defines the moneyness as the spot value divided by the strike: we understand that it is rather the strike divided by the spot which is the usual perspective (but this is a convention and is not so important).

In the last CP3 instructions (§III of the preamble, p.182), one can read : “Vega risk positions for smile risk should be computed based on a regulatory projection procedure, projecting ATM vega risk positions on to three new risk factors : $80\% \cdot \text{ATM}$, ATM , $120\% \cdot \text{ATM}$ ”.

First, we understand that all vega risk has to be projected, and not only ATM vega risk.

This set up seems to us relevant except when the forward rates are too small since strikes would be too close.

To solve this issue we propose to keep this parameterization if $\text{ATM} > 5\%$ and otherwise to consider $80\% \cdot \text{ATM}$, $80\% \cdot \text{ATM} + 1\%$, $80\% \cdot \text{ATM} + 2\%$. Following this we maintain a gap of 1% between strikes under 5% of ATM and have a continuity of the 2 parameterizations at 5% of ATM. If ATM is negative strikes are fixed and are respectively 0%, 1% and 2%.



Correlations

Between vega exposures:

The last CP3 version (on paragraph §IV of the preamble p.183) mentions that “between vega exposures, the correlations should be computed as follows: $\rho_{i,j} = \rho_{Ti,Tj} * \rho_{Ki,Kj}$ with $\rho_{Ti,Tj} = e^{-\alpha(Ti-Tj)}$ and $\rho_{Ki,Kj} = e^{-\beta(Ki-Kj)}$ (with K expressed as a percentage of moneyness)” and that “several values of α and β will be tested during the QIS”. So we understand that between vega exposures, the correlation does not depend on the sign of exposures.

However, it is still not specified what is the correlation between vega exposures on different tenors (or maturity of the underlying).

With delta:

In the same paragraph §81 it is asked to even correlate the vega risks with the delta risks with correlations +1 or -1 depending on sign. These correlations are clearly conservative. Unless the above correlations are adjusted further on, the addition of a standalone delta brick and a standalone vega brick as it used to be can appear as conservative and more simple and transparent.

In the §IV of the preamble of the last CP3 instructions, one can understand that summing the standalone vega brick and the standalone delta brick leads to the same result as calculating a global GIRR by correlating delta and vega with (+1/-1) : “The risk measures computed for each of them (delta and vega) are consequently gathered separately”.

We will show in the following example that it is not always the case.

Let’s consider the following weighted sensitivities:

Delta 0.25y	100
Delta 0.5y	-100
Vega 0.25y	100
Vega 0.5y	-100

If we consider a α of 3% (see above), we get a correlation of 98.51% between Vega 0.25y and Vega 0.5y. The correlation between Delta 0.25y and Delta 0.5y is 90% as stated in the CP3 instructions.

So we get :

$$K_{standalone\ delta} = \sqrt{2 * 100^2 - 2 * 0.9 * 100^2} = 44.72$$

$$K_{standalone\ vega} = \sqrt{2 * 100^2 - 2 * 0.9851 * 100^2} = 17.26$$

$$K_{global\ GIRR} = \sqrt{4 * 100^2 - 2 * 0.9 * 100^2 - 2 * 0.9851 * 100^2 + 8 * 1 * 100^2} = 286.88$$

In this example, we have $K_{global\ GIRR} = 4.62 * (K_{standalone\ delta} + K_{standalone\ vega})$.

Volatility shocks

In the previous instructions a uniform relative shock of 25% was assumed on volatilities. In the last CP3 version a shock of $0.55 \times \sqrt{\frac{60}{10}} = 135\%$ is prescribed, which seems to us a too important value.

Indeed according to some analysis we have done to calibrate some extreme scenarios it appears that an average but conservative value for an extreme shock calibrated on a stressed period should be rather around +50% ; only on options with both expiries and tenors less than one year a more important shock could be considered, around +80%.

Vertice

The last CP3 version (§III of the preamble, p.182) specifies a table of buckets in which we need to allocate vega risk positions:

1	2	3	4	5	6	7	8	9	10	11
<0.25	0.25 to 0.5	0.5 to 1	1 to 2	2 to 3	3 to 5	5 to 10	10 to 15	15 to 20	20 to 30	>30

The separation between buckets is not clearly specified. For example, for a 5y exposure, we do not know if we need to allocate it to the bucket 6, to the bucket 7 or 50% to each of them.

We do not understand why the delta vertice table has not been reused for vegas. We think that this new feature add some unnecessary complexity to the SBA.

Aggregation of vega

A methodology in order to aggregate Vegas seems to be necessary in order to reflect market movements within a volatility matrix. For instance, we could constitute an aggregated Vega matrix per underlying and then offset within this matrix, Vegas positions with different signs and closer in terms of strike and maturity. This methodology could be justified when the pooled close-out costs from a combination of vanilla options are significantly lower than the corresponding individual close-out costs.

We suggest considering a new step within the methodology aiming at offsetting Vega positions within a reduced matrix. The methodology would thus be decomposed into 2 steps:

- A first phase would be the constitution of a matrix of Vega (K,T), aggregated by underlying and reduced compared to the initial one provided by the front office. This step is not different from what is prescribed currently.
- A second phase would be the offsetting within the matrix in order to take into account positions close to each other in terms of strike or maturity, with different signs. These positions would have pooled close-out costs from combinations of vanilla options (Call Spreads, Calendar Spreads) significantly lower than the corresponding individual options close-out costs.

a) Triangularization / reducing the matrix of Vega (K,T)

Sensitivities Vega (K,T) per underlying provided by the front office have a large number of different strikes and maturities.

This first step would aim at reducing the size of the matrix by projecting each Vega (K,T) linearly on the reference elements which are side by side.

b) Offsets

This second step would be justified by the fact that transactions in the Vanilla Options market often correspond to a combination (typically **Call Spreads** and **Calendar Spreads**) rather than individual options.

Since the costs of a combination of vanilla options is usually significantly lower than the cost of the replication strategy using individual options, we could offset positions within the matrix of Vega (K,T) as described below.

The offsetting phase could be split into 2 successive steps:

- A first offsetting among the maturities dimension with an offsetting between strikes when Vega of adjacent strikes have opposite signs (under the assumption of a lower friction cost for Call Spreads compared to individual options).
- A second offsetting between the resulting vegas with an offsetting between maturities when Vega of same strike and adjacent maturities have opposite signs (under the assumption of a lower friction cost for Calendar Spreads compared to individual options).

Thus, for each maturity (in ascending order), the process would begin with the lower strike, offsets opposite sign sensitivities of adjacent strikes and so forth until the highest strike is reached. A similar mechanism would be then applied among the strikes axis, for each maturity (in descending order).

Please note that the second offsetting process is applied with the residual Vega (from the first offsetting process).

Finally, the initial matrix of Vega (K,T) is reduced to a new matrix constituted by the friction costs and the residual Vegas from the 2 successive offsets.

We want to stress that the new step of offsetting is not cumbersome, does not add unnecessary complexity to the proposed methodology, and foremost is in line with market practices.

3. Treatment of curvature risk

The industry welcomes the modification to the curvature computation taking into account a more economical view. Nevertheless, some further refinements need to be made amongst other things to deal with diversification and negative interest rates.

First of all, we question the rationale for squaring the correlations in the case of curvature. In practice, the level of the parameter γ_{bc} used (i.e. 25%) is deemed to be too low and does not take into account diversification.

Indeed, long gamma positions do not provide any benefits and even attract more capital charge in some situations than having only negative gamma positions.

To illustrate this, we take the example of two portfolios, one consisting of a short gamma position on EUR for say a curvature risk exposure CVR_1 of +10 and a second portfolio composed of the same short gamma position on EUR and a long gamma position on USD with a curvature risk exposure CVR_2 of -10.

In the first portfolio, the Curvature Risk Charge would be at +10, whereas this charge would be at +12.25 (using γ_{bc} of 25%) for the second portfolio.

Even if the parameter γ_{bc} is not squared (i.e. 50%), the Curvature Risk Charge for the second portfolio would be 10 which is as much as the first portfolio, even though we added a long gamma exposure which should mitigate the risk.

As a result, a diversified portfolio will incur more capital charge using the current CP3 methodology.

		$\gamma_{bc} = 25\%$		$\gamma_{bc} = 50\%$	
Portfolio 1	CVR_k	Portfolio 2	CVR_k	Portfolio 2	CVR_k
Short Gamma EUR	10	Short Gamma EUR	10	Short Gamma EUR	10
		Long Gamma USD	-10	Long Gamma USD	-10
Curvature Risk Charge	10	Curvature Risk Charge	12,25	Curvature Risk Charge	10,00

We would argue that a level of γ_{bc} would be at least equal to 50%.

Second, regarding negative interest rates, we wanted to stress that at this stage there is no prescribed methodology to deal with this issue and flooring rates at zero is not a realistic choice as a number of currencies have already negative rates on the front end of the curve. On the other hand, on credit spreads, the same problem arises, and as credit spreads cannot be negative, a floor is indeed needed.

III. Internal Model Approach

1. Full revaluation

Full revaluation is required for expected shortfall (ES) calculations in the internal model approach (IMA) §171(c). It is explained that full revaluation can be achieved by approaches that capture curvature “such as grid-based methods”. We are seeking confirmation that Taylor expansions could as well be considered as appropriate approaches for full revaluation as long as it can be demonstrated that curvature risk is appropriately captured.

In particular, we consider that Taylor expansions are generally capable of suitably capturing curvature risk at a 10-day liquidity horizon provided that second order greeks are accounted for. Besides, we remind that the P&L explain test will act as a safeguard against inadequate P&L approximation. Accordingly and for the avoidance of any doubt, we ask BCBS to recast the wording of final rules as follows:

“For full-revaluation ES, approaches such as grid-based methods or Greeks-based methods would be appropriate as long as they adequately capture curvature risk”

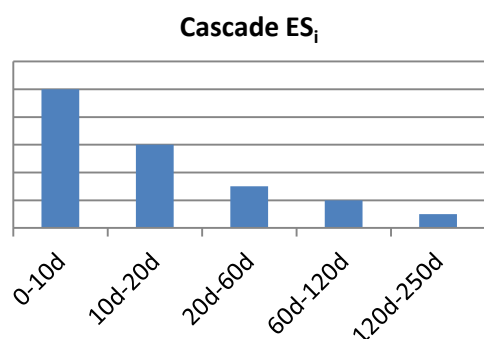
2. Incorporating the risk of market illiquidity in the internal models approach

Cascading Portfolios

The regulatory formula proposed in the CP3 for the liquidity adjusted Expected Shortfall (ES) is obtained by splitting trading positions into five cascading portfolios.

These portfolios are virtual and represent the loss that will occur between two consecutive liquidity horizons (from 0 to 10 days, from 10 to 20 days ... from 120 to 250 days) assuming the risk factors with shorter horizons have been hedged. As the subset of active risk factors decreases with time, it gives an impression of cascade until complete risk extinction.

For computational purposes, individual expected shortfalls $(ES_i)_{i=1..5}$ are computed for each portfolio based on 10-day shocks, rescaled with the square root of time, and aggregated orthogonally.



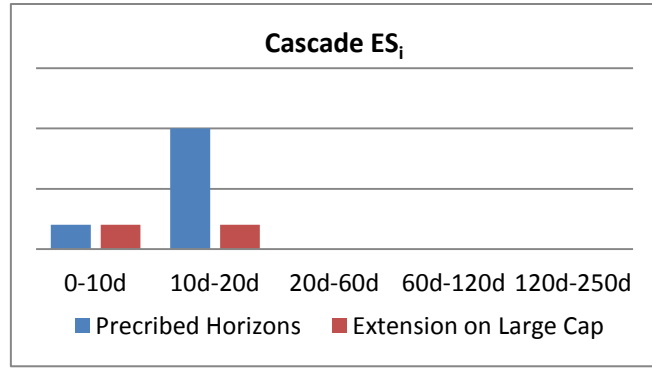
$$ES = \sqrt{ES_1^2 + ES_2^2 + 4ES_3^2 + 6ES_4^2 + 13ES_5^2}$$

Broken Hedges

As run-off positions are progressively managed towards complete risk extinction, one expects the cascading ES terms to decrease with time.

However, a strict application of the liquidity assignment can cause unintended upsurges in the residual level of risk, as liquidity mismatch within trading strategies potentially create situations of broken hedge. For instance, a mixed portfolio of small and large cap equity shares (respectively 20-day and 10-day liquidity horizons), where the latter hedge the former, will provide inconsistent risk estimates over the 10d-20d period.

To avoid such situations, the CP3 grants flexibility for banks to interpret the prescribed liquidity assignment as a ‘floor’, or in other words to extend on certain trading desks the horizons of specific risk factors. In our example, extending large cap horizon to 20 days would provide a much more consistent risk profile:



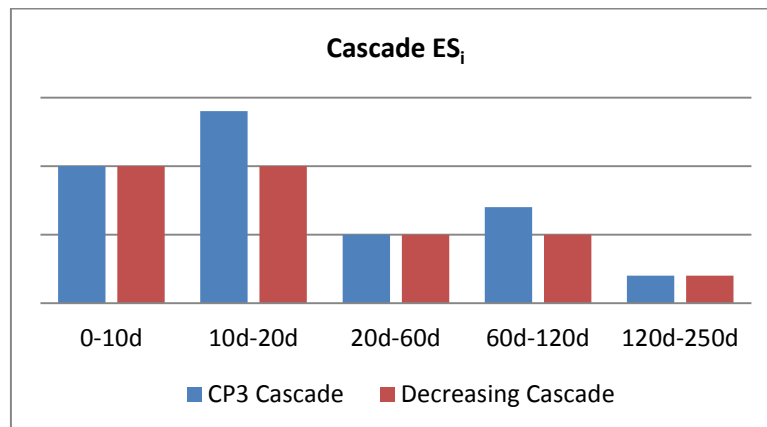
This flexibility is a welcomed change and efficiently addresses the problem of broken hedges. Nonetheless, **the ‘floor’ introduces additional complexity into the ES computation**, since the liquidity set up is no longer to be done at the risk factor level but at the {risk factor x desk} level. For instance, while computing the portfolio-wide ES, no risk factor with 20-day liquidity should contribute to the third term ES₃, except for positions belonging to trading desks where an extension is deemed necessary.

Working with multiple set up simultaneously will add to technical complexity and increase operational risks, whilst implementation will become less transparent to risk controllers and supervisors.

Additional Proposal: Decreasing Cascade

A useful complement to the liquidity floor and a welcome step towards simplification would be to **force decreasing ES terms** directly in the regulatory formula:

$$ES = \sqrt{(ES_T(P, Q_1))^2 + \sum_{j \geq 2} \left(\min_{k \leq j} (ES_T(P, Q_k)) \sqrt{\frac{LH_j - LH_{j-1}}{T}} \right)^2}$$



This enhancement has several advantages:

- It provides a safeguard against unintended risk upsurges and consistently materializes into the capital framework the fact that usual portfolio “derisking” or unwinding of positions is never done in a manner that it increases residual risks.
- It does not require separate set up at trading desk level: one unique set up is needed and it will be easy for supervisors to control its consistency with the FRTB prescribed liquidity horizons.
- The decreasing cascade approach has the merit of being systematic which will grant consistent and homogeneous implementation of the floor concept across firms. In this respect, it contributes to increase RWA comparability across firms.
- It addresses efficiently the “broken hedge” issue while keeping simple and operationally tractable. In particular, CP3 allows liquidity horizons to be increased at desk x risk factor level subject to appropriate documentation and prior supervisory approval. It is very likely that this process will imply a significant additional workload for both banks and their supervisors. The proposed approach enables to get rid of such a burdensome process while preserving the economic rationale of flooring liquidity horizons.
- It is a minor change to the CP3 formula and could thus be easily tested in next QISs .

Note that the proposed enhancement to the regulatory formula does not aim at replacing the flexibility given in CP3 to make exceptions in the liquidity assignment, but just achieves a subset of it. As it provides a quick-fix for non-decreasing risk profiles, **it will actually reduce the necessity for banks to resort to such exceptions and deviate from the prescribed liquidity horizons.**

3. Computational intensity

We appreciate that the Committee has addressed the drawbacks of:

- Using long-horizons shocks of differing duration to compute portfolio P&L by proposing the “cascade approach”,
- Identifying a suitable stress period by proposing the indirect approach.

Nevertheless, we would like to raise the concern about the overall operational burden it introduces. Indeed, coupling this with the necessity to calculate partial ES by risk factor classes, the number of weekly runs is multiplied by more than 40 from Basel 2.5 framework to FRTB one. Running so many calculations will be challenging not only from systems perspective but also in terms of analysis capabilities: we have serious doubts on the ability of institutions to analyse and certify hundreds of weekly runs. Our fear is that, as a direct consequence, it will reduce incentive for institutions to use these metrics to steer risks.

We therefore encourage the Committee to strike a right balance between capital charge adequacy and operational burden in the policy decision process. In particular, we believe reducing the computation frequency of runs would have limited impact on capital requirements.

The Committee could delve into different leverages:

- Reduce the calculation frequency of the ratio ($ES_{F,C} / ES_{R,C}$) used to scale up the stressed ES of the reduced set of risk factors : we suggest to update this ratio on a quarterly basis instead of a daily basis.
- Reduce the calculation frequency of the $ES_{R,S}$: the CP3 indicates that the aggregated charge for approved desks depends on the daily average of the previous 60 days while the CP2 was only referring to a weekly average of the previous 12 weeks. We suggest performing the calculation on a weekly basis which is consistent with the current regulatory requirements of weekly Stressed VaR calculation.
- Reduce the calculation frequency of the partial ES by risk factor classes: we suggest an indirect method to account for the limited recognition of hedging and diversification across asset classes to limit the calculation requirements of the partial ES to quarterly calculation. Under the indirect method, the impact of averaging the firm-wide ES charge with a simple sum of the partial ES charges for the primary risk factors could be assessed at end-of-quarter and expressed in terms of percentage of increase of the firm-wide ES. This impact which remains constant over the next quarter is applied to the weekly calculation of the firm-wide ES.

Combining these 3 propositions leads to reduce the number of full revaluation runs required per week from 455 to 10 plus 85 additional quarterly runs.

	Frequency of runs	Total nb of weekly runs	Total nb of additional quarterly runs
CP3 propositions	Daily for all measures	455	-
Ratio $ES_{F,C} / ES_{R,C}$ *	quarter	155	60
$ES_{R,S}$ *	week	95	-
Partial ES by risk factor classes	quarter	80	75
Combination of the 3 effects	-	10	85

*Applied at both firm-wide and asset class levels of aggregation

Details on the number of required runs

Within the current Basel 2.5 framework, a bank needs to perform:

- one full revaluation run on a daily basis for 10 day VaR computation,
- one for 1 day VaR computation for backtesting purpose (with the open possibility of deducing 10 days VaR from 1 day VaR by square root of time rule),
- and another full revaluation run on a weekly basis for Stressed VaR computation.

Within FRTB, the number of runs could increase drastically:

- 6 levels of aggregation (5 risk factors plus one firm-wide)
- 5 cascading sets of risk factors to reflect 5 liquidity Horizons: 10 days, 20 days, 60 days, 120 days and 250 days
- 3 types for the “indirect method”: “reduced stressed”, “full current”, “reduced current”
- 1 day VaR calculation for backtesting purpose

Tables below compare the number of required weekly computations in the two frameworks:

Basel 2.5 weekly computations		FRTB weekly computations				
Type of runs	Nb of run/week	Level of aggregation	Set of risk factors	Total		
VaR 10d	5					
VaR 1d	5					
Stressed VaR 10d	1					
Total Full revaluation runs	11					

Type of runs	Nb of run/week	Level of aggregation	Set of risk factors	Total	
ES _{R,S} firm-wide	5	Firm-wide	5	25	
ES _{R,C} firm-wide	5	Firm-wide	5	25	
ES _{F,C} firm-wide	5	Firm-wide	5	25	
ES _{R,S,i}	5	5 asset classes	5	125	
ES _{R,C,i}	5	5 asset classes	5	125	
ES _{F,C,i}	5	5 asset classes	5	125	
VaR 1 day	5	Firm-wide	1	5	
Total Full revaluation runs				455	

The last table show the combining effect of the 3 propositions on the required number of full revaluation runs:

Type of runs	Nb of run/week	Additional runs/quarter	Level of aggregation	Set of risk factors	Total weekly runs	Additional quarterly runs
ES _{R,S} firm-wide	1	-	Firm-wide	5	5	-
ES _{R,C} firm-wide	-	1	Firm-wide	5	-	5
ES _{F,C} firm-wide	-	1	Firm-wide	5	-	5
ES _{R,S,i}	-	1	5 asset classes	5	-	25
ES _{R,C,i}	-	1	5 asset classes	5	-	25
ES _{F,C,i}	-	1	5 asset classes	5	-	25
VaR 1 day	5	-	Firm-wide	1	5	-
Total Full revaluation runs					10	85

QUESTION 2: Do these specific proposals strike the right balance between simplicity, comparability and risk sensitivity?

Overall, industry welcomes the revised sensitivity-based approach (SBA) as an alternative to cash flow-based calculations proposed in the second consultative paper as well as the correlation scaling approach as an alternative to the disallowance factor. These refinements appear to have the potential to lead to a more risk sensitive approach (given that the issues raised by industry on some critical elements of the framework and the overall conservatism of the calibration are being considered). We agree that the combine efforts made to refine risk sensitivity lead to a granular approach that accounts for second order risks but that is far less complex to implement than the cash flow-based calculations since it relies on inputs banks are familiar with.

We believe that the objective of increasing risk sensitivity and providing credible fallback to internal models are the right ones. This is all the more important given that the BCBS consultation paper on Capital Floors shows the regulator's intent to rely more heavily on standardized approaches for capital requirements assessment and comparability.

As such, from our perspective, a certain degree of complexity in the standard approach design is unavoidable. A right balance between simplicity and complexity is highly desirable while pursuing the unique goal of simplicity could instead result in inappropriate risk pricing. The approach suggested in this paper to overcome asymmetric correlation is going in the direction of more simplicity.