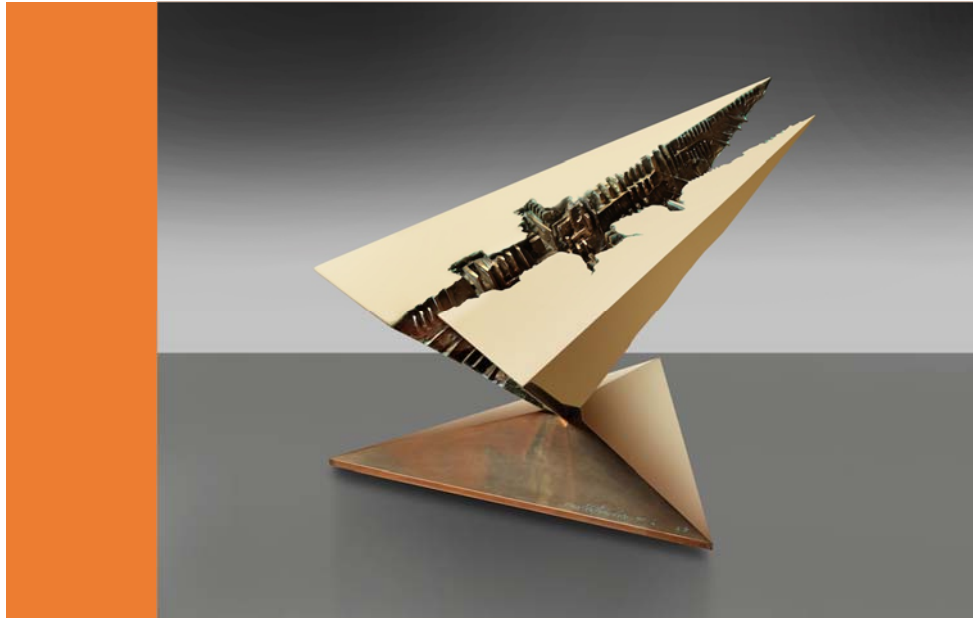




Comments to the Consultative paper Review of the Credit Valuation Adjustment Framework

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Iason Ltd
6, O'Curry Street
Limerick
Ireland

Basel Committee on Banking
Supervision (BCBS)
Centralbahnplatz 2
Basel, Switzerland

**Re: BCBS Consultative Document on the Review of the Credit Valuation
Adjustment Risk Framework**

Dear Sir/Madam,

Iason appreciate the opportunity to comment on the Basel Committee's consultative document (CD) on the Credit Valuation Adjustment Risk Framework, issued for comments in July 2015.

Iason is a consulting company based in Ireland and Italy providing financial institutions with both methodological support and IT applications for pricing and risk measurement purposes. Based on our knowledge of the financial markets and on our experience with major European banks in building processes and solution to measure the risks related to the CVA and Counterparty Credit Risk, we hope to contribute to the discussion about the proposed review.

Respectfully Submitted,



Antonio Castagna
Senior Specialist



Michele Bonollo
Senior Specialist

1. General Considerations

The CVA Hierarchy vs. the Other Building Blocks Taxonomies

We appreciate the effort of the Committee to differentiate the approach for the CVA capital charge, in order to take in to account a proportionality approach, section 2 of the CD. Here for proportionality we mean both the complexity/size of banks OTC book and their internal capabilities.

Nevertheless, we do not understand completely the rationales for the suggested hierarchy, mainly referred to the Basic Approach. In fact:

- To compute a rough sensitivity with respect to the spread of the counterparty is not so difficult. Many banks adapt in some way for such a task their pricing libraries.
- Moreover, small and medium banks very often have plain interest derivatives with their corporate customers. Hence, the future dynamics of the exposure and the interaction between credit risk factors and market factors may be faced by usual mathematical tools
- On the other hand, the very hard problem is not the sensitivity, but the sensitivity with respect to what. In other words, the counterparties may be illiquid, and the proxy of it to any index is still an open issue. The section C of the Annex, point 103, addresses only partially this issue, since it is just a judgmental calibration of the involved market parameters. An “implied” market calibration is very difficult to perform.
- Finally, the basic approach seems to be not coherent with the recent strategy for the other capital charge building blocks. We recall that in the new standardised approaches for the CCR (paper 279) and for the market risk FRTB (paper 305), the goal is to have more effective models, i.e. to make them more risk sensitive and more “granular” in the risk factors treatment. Also for the Operational Risk (paper 291) the “basic” approach, i.e. the BIA based on just the gross income risk driver, will be replaced by a new more sophisticated set of exposure indicators.

To summarize, for the above specific reasons and for a coherency principle, we find that the Committee should wonder about the taxonomy, in particular on the effective needing of a basic approach.

Regulatory vs Accounting CVA

The CD definition of the CVA tries to fill the existing gap between the regulatory and accounting CVA. This will lead to a greater consistency of the risk assessment determined by the Basel rules and the accounting measuring of the CVA metric.

One of the differences that will remain, even with the new framework proposed in the CD, is treatment of the DVA (see par. 1 and 13), which is excluded in agreement with

all the most recent Basel regulation, and which is on the contrary recognised by the new accounting principles, namely IFRS 13.

We believe that the current regulation is following the right route in excluding from the CVA the DVA, i.e.: in considering only the unilateral CVA: we think this is right not only under a prudential point of view, but also under a sound financial perspective. Actually, it has been proved in some research papers and articles (see for example Castagna [1], [2]) that the DVA can be replicated under very strict conditions hard (although not impossible in principle) to implement in practice. But even conceding the actual possibility to replicate the DVA, it can be shown that its accounting at a counterparty netting-set level largely over-estimate the limited liability protection that shareholders have (see on this point Castagna [3]).

Hence, the choice to exclude the DVA is reasonable and not just prudent, contrasting the accounting principles laid down in the IFRS 9. These principles rely on the false premise that a derivative contract has an “objective” value that is independent from which of the two counterparties it is evaluated, even if this objective value contains elements that belong to both counterparties, namely the adjustments for the credit risks of both of them. This premise paves the way to an exact symmetrical evaluation of the two parties that is quite nice under an accounting point of view, since it makes the evaluation principles in theory perfectly complying with general accounting principle of the “fair and true view”, but it can be hardly justified as far as the other general principle of “prudence”.

We think that both the regulatory and accounting prescriptions can be fulfilled if banks allocate a provision equal to the DVA any time a variation of the DVA is added to valuation of the derivative portfolio. In this case, all the gains coming from the DVA’s increase would be neutralized, since they would be offset by a parallel increase of the provision, and the other hand when the DVA collapses to zero as the trade expires, the loss would be compensated by a reduction of the reserve. In the end, the DVA would be fairly represented in the valuation of the derivative portfolio, yet it would not add to the bank P&L and it would be recognized simply as a cost at inception and gradually split on the years of the portfolio’s duration. The allocation of the provision does not require any change in the accounting principles, because it adheres in any case to the overarching “prudence” principle.

Banks would be incentivized not to start any hedging activity of the DVA, since the allocation of the provision would create P&L volatility if the bank tried to start a hedge. The possible complaints that the regulation does not match the accounting principles would thus be addressed.

Specific Calculation Methodology

The paper seems to propose specific calculation methodologies for sensitivities (see par. 41 and 42). Actually, more sophisticated methods to compute sensitivities, other than the brute force approach proposed, are available in theory and they have also

been implemented in practice by some banks (e.g.: adjoints and automatic differentiation). Simple bumping the risk factors may not be the most effective way to compute sensitivities.

We suggest modifying the CVA framework to allow banks to choose the preferred numerical calculation method. In other words, we believe that the Committee should strictly prescribe only the functional mathematical definition of the indicator, allowing to the bank to select the optimal strategy to calculate it (numerical, simulation, *etc.*). See Bonollo et al. [4].

A similar issue arises in the EE_t calculation for the EPE in CCR, where the theoretical definition (expected value in the future) is combined with the algorithm (a Montecarlo approach). We fear that this way to state the regulation could be misunderstood, since in practice the banks choose their own algorithmic strategy, combining ICT devices (GPU, grid, *etc.*) with mathematical tools (quasi Montecarlo, approximations, *etc.*).

Non-Captured Risks

The CD suggest a multiplier m_{CVA} for the *wrong way risk*, if it is not properly accounted for in the bank's methodology (see par. 32 and 33). Now, while we agree with a greater prudence in the assessment of the CVA for the un-accounted risks, we think that the CD focuses only on one of them, namely: the *wrong way risk*, without considering more relevant risks likely affecting the measurement in a more material way.

In more detail, the CD does not mention the errors arising the correlation matrix employed in the calculations, when it does not reflect the actual future matrix. Correlations are rarely found quoted in the market and only a few contracts can be traded to hedge the correlation risk. Since the CVA, as far as its hedging is considered, can be seen as a very complex hybrid derivative contract (especially if netting sets are cross-asset), a wrong correlation matrix implies that the second order sensitivities (Cross-Gamma and Cross-Vega) cannot be soundly hedged, and this would entail a mis-hedge also for the linear Greeks (*i.e.*: Delta and Vega) which may eventually result in a global increase of the P&L volatility, contrarily to the supposed minimization due to the hedging.

We suggest including in the CVA framework also an assessment of the risks related to the correlation matrix, when correlations cannot be easily traded in the market, or they cannot be traded at all. This is very likely the most common situation in the current markets.

As a general consideration, we are quite skeptical on the effectiveness of the CVA hedging (*i.e.*: replication) in practice. We would prefer to treat the CVA earned on the deals closed by the bank as an actuarial premium, rather than a derivative exposure to be synthetically replicated. The volatility of the CVA can surely absorb capital but the effectiveness of the hedging, set up to reduce it, should be carefully evaluated and put under stress.

2. FRTB CVA

Double Counting

The CVA framework relies on the changes of the Fundamental Review of the Trading Book, yet it is quite independent from the calculation of the regulatory capital for the market risk. We are aware that the Expected Shortfalls (ES) for the market risk and for the CVA volatility are computed out of two quite different approaches, and that the latter needs a simulation up to the expiry of the longest contract which is not strictly needed to determine the market ES. Nonetheless, it is obvious that the positive exposures increasing the counterparty risk could be also compensating a decreasing risk on the market risk side, due to the positive impact on the NPVs.

The CVA framework should allow banks with sophisticated skills and strong IT computational capabilities to measure jointly the ES on the market and counterparty risks, so that possible compensation of risks are properly identified and measured.

The Risk Measure and Aggregation in the FRTB SA-CVA

The computational workflow

The SA approach follows the general strategy of making the standardized model more risk sensitive, by dealing in a rigorous way the key concepts such as risk factors, sensitivities, *dependency/correlation* structure. Generally the parameters implied by this set-up are assigned by the Committee.

All the *non-internal-models* banks will be obliged to work intensively to switch from very simple standard models that do not require sophisticated mapping and calculation procedures to the new SA. We refer mainly to Market, CCR and CVA capital charge.

In this framework, we think that the SA models should be more homogenous in their “architecture”, to avoid that small-medium banks make some confusion in managing and calculating these new measures. Otherwise they are obliged to maintain at the same time two or more systems for mapping and categorizing their risk factors.

As a simple example, let us compare the new SA-EAD for the CCR (paper 279) with the current SA-CVA. For the sake of simplicity, we refer briefly to the “Equity” asset class:

- For CCR (EAD) purposes, a *single risk factor model* is prescribed with just *one hedging set*. Hence the full offset is allowed within the same reference entity, while a correlation factor is assigned with respect to the systematic factor, 50% for single names and 80% for the indices
- For the CVA, *i.e.*: for capturing the (equity) exposure volatility, the workflow consists of 10 buckets given by a *sector/geography* taxonomy. The Delta and Vega exposure CVA sensitivities are then calculated with a cross correlation γ_{ij} of 15% between all couples of buckets.

Then we could easily build a counterexample, *e.g.*: a portfolio of 2 equity derivatives belonging to different buckets, where the price joint movements of the 2 entities are **taken in to account differently** for the PFE and for the CVA-Exposure effect respectively.

Correlation coefficients and Risk Weights

In the spirit of the SA calculation, we generally agree with the general workflow. On the other hand, we suggest improving some of the current parameters value.

There are several examples, but for brevity, we point out some simple cases:

- The risk weight RW for Delta risk for FX is 15%, while the lowest RW for the Equity risk class is 30%. As well known, the RW role is to move from a *what-if* measure (the sensitivity of the instrument to the risk factor) to the instrument volatility. From this set-up one could argue that the highest volatility FX rate is **2 times lower** (in volatility) of the lower equity volatility. We claim that **this is not** a realistic picture of the market price volatilities
- The correlation *cross buckets* for the FX is 0.6, for the Equity is 0.15. Again, we find it not very accurate. It is often observed in the financial markets that the sectors **move together** inside a macro area, irrespectively of the size of the firms. In some cases, such as the buckets (1,2,3,4) vs bucket (9), *i.e.*: large cap vs. small cap in emerging markets (see Annex 1.B.2), a 0.15 coefficient is **too low** and not conservative. On the other hand, a 0.6 “flat” between the currencies in some cases is too high, also in a conservative perspective.

Computational Burden for the FRTB IMA-CVA

The CD proposes to compute the CVA capital charge daily, under different assumptions on the MPOR (par. 13), liquidity horizons (par. 85) and, above all, separately and jointly for all the relevant risk factors (par. 86, 87, 88, 89). On the one hand, this is a huge increase of the computational burden with respect to the current requirements to calculate the IRC; on the other hand, even more sophisticated banks calculating the CVA for the trading desks managing it, likely do not operate daily so many computations as those implied in the proposal.

IT technology is certainly available to perform the required computations on a daily frequency, but we suspect that the investments needed to upgrade existing systems would be massive even for more advanced institutions.\

We are not trying to minimize the complexity and the subtleties of the risks involved with the CVA (as the point above on the correlation shows). We are simply making the point that maybe a daily calculation is too high a frequency for practical purposes. In our view, it would be better to relax the frequency in favour of a deeper analysis of the model risks even beyond those explicitly considered in the CD.

3. Response to Questions

Q1 To what extent do large netting sets; potentially illiquid transactions inside a netting set; and recent disputes affect the internal assessment of the margin period of risk (MPoR)?

We believe that recent disputes are the factor affecting more the internal assessment of MPoR. We strongly doubt that the other two factors currently have any relevance in most banks.

In any case, when a dispute occurs, the MPOR should be affected only for the deal(s) involved, and not for the entire netting set. A possible solution could be the extraction of the deals under dispute from the netting set and the calculation of the CVA capital charge without allowing for any netting.

Q2 Is Alternative 1 or Alternative 2 preferred with regard to the calculation of MPoR?

We prefer Alternative 1, since Alternative 2 is probably too conservative for CVA risk charges. The drawback of Alternative 1 is that the N+9 rule is likely higher the choice made by most banks for liquid netting sets.

Q3 Should IMM approval be included as an additional eligibility requirement for the FRTB-CVA framework under Option A (i.e. accounting-based CVA method for generating scenarios of discounted exposure)?

Our answer is NO, since the accounting framework can be developed in a complete separate system following other criteria not necessarily matching those guiding the regulatory capital charge.

Q4 To what extent is there synergy between the calculation of accounting CVA and the EAD calculation for IMM with respect to processes, data and methodology?

Synergies can be found in the general approach and methodology chosen by the bank to compute the CVAs for accounting and risk charge purposes. Anyway, the systems can be also built separately with different specific criteria, as mentioned above, due to the different goals of the two calculations.

Q5 Is Option A (accounting-based CVA) or Option B (IMM- based CVA) preferred for exposure calculation?

We think that both options are sustainable and can be kept in the regulation. The first choice is in line with the current practice, whereas the second could be exploited by IMM approved banks.

Q6 Is Option 1 or Option 2 preferred for simulation time horizons?

We prefer Option 1, since it agrees with the FRTB and it allows differentiating the horizon with respect to the credit quality of the counterparty. Our worry about the huge increase of the computational burden is restated here.

4. References

- [1] A. Castagna. *“On the dynamic replication of the DVA: Do banks hedge their debit value adjustment or their destroying value adjustment?”* Iason research paper. Available at <http://iasonltd.com/resources.php>, 2012.
- [2] A. Castagna. *“On the impossibility to replicate the DVA”*. Risk, November, 2012.
- [3] A. Castagna. *“Towards a theory of internal valuation and transfer pricing of products in a bank: Funding, credit risk and economic capital”*. Iason research paper. Available at <http://iasonltd.com/resources.php>, 2013.
- [4] M. Bonollo, L. Di Persio, I. Oliva, A. Semmoloni. *“A Quantization Approach to the Counterparty Credit Exposure Estimation”*. Available at www.ssrn.com, 2015

