# CVA Risk and Capital

*Remaining issues in the Capitalization of CVA risk after Basel 3*

## Introduction

The Basel 3 proposals for counterparty credit risk contain significant enhancements related to the capitalization of some elements of CVA risk. In particular, the Basel Committee addressed the variation of CVA with credit spreads, a significant source of losses for banks during the 2007-8 financial crisis. Nonetheless the Basel 3 framework falls short of what we believe is a coherent and comprehensive treatment of counterparty risks that are fully marked to market and actively hedged as well as those that are marked using non-market credit measures such as ratings.

This note focuses on key issues of the CVA risk capital charge that require addressing in order to ensure appropriate alignment of risk and capital. This forms part of a number of issues in relation to the capitalization of counterparty credit risk issues that also include the overall design of the framework that we also encourage the BCBS to incorporate into the fundamental review in order to further develop a consistent and coherent approach.

## Shortcomings of the Basel 3 Framework

### *1. Banks' CVA models are not used in the calculation of regulatory VAR and stressed VAR*

Under Basel 3 rules, the risk sensitivities of the CVA that are the inputs for the VAR and stressed VAR calculations are different from those produced by the actual CVA models used by banks. This is problematic because CVA risk is then measured differently from and inconsistently with the risk metrics that banks use to mark, measure the risk of, and hedge the CVA. This introduces spurious (non real) risks in the capital calculation. CVA models, like other pricing models used by banks, are subject to extensive development and implementation effort, and independent model validation and approval processes to ensure that they are as appropriate and correct as possible. Therefore banks should be allowed to use the risk sensitivities produced by their own CVA models in the calculation of capital.

### *2. CVA risks and hedges extend beyond credit spread risk*

The Basel 3 calculation of CVA VAR and stressed VAR focuses exclusively on risk due to variability of counterparty credit spreads. CVA risks are much broader and complex than credit spread risk. They include all risk factors that drive the underlying market-driven counterparty exposures as well as the non-linear / correlated interactions between

counterparty exposures and the credit spreads of the counterparties. By focusing on credit spreads alone, the Basel 3 VAR and stressed VAR measures are simply not reflective of the real risks that drive the P&L and earnings of the banks. Moreover, banks typically hedge these non-credit-spread risk factors. The Basel 3 capital calculation does not include these hedges, leaving them naked in the trading VAR. Banks are thus penalized in capital for reducing risk, and thus incentivized not to hedge.

*3. The coherence of the capital framework and the avoidance of double counts*

Under the Basel 2.5 framework, the capitalization of banks' trading books has been substantially raised by the inclusion of risk measures that aim at complementing VAR. A key consideration in the development of the framework (VAR + stressed VAR + IRC + CRM) is its consistency and coherence. Any capital framework should capture hedges properly, avoid double counting, and capture all relevant risks. Basel 3's CVA VAR and stressed VAR are not coherent, and indeed increase the substantial incoherence/double counting already present in the Basel 2.5 framework. Moreover, the Basel 3 charge is literally an add-on to the Basel 2 banking-book-like calculation of counterparty risk capital.

*4. Standalone CVA capital calculation*

Those banks that hedge CVA do so as an integral component of their trading book. The credit and market risks in CVA are no different from the same risks as embedded in many other trading positions such as corporate bonds, CDSs, or equity derivatives. CVA can be seen as just another source of market risk and thus managed within the overall context of the trading book. Basel 3 requires that the VAR and stressed VAR be calculated on a stand alone basis, separate from the rest of the trading book. This is an artificial segregation and it is not consistent with the way banks manage the economics of CVA risks. A special capitalization framework (similar to CRM in correlation trading) could be developed for CVA, but the best approach would be simply to include CVA and all of its hedges into the trading book capital calculation.

*5. Dependency on IMM approval*

Regulatory IMM counterparty credit exposures are not directly relevant for CVA. "Stressed" counterparty credit exposures are even less relevant for CVA pricing. This is because IMM, and other stressed exposure measures, are designed to provide a conservative assessment of counterparty risks. In contrast, accurate (neither aggressive nor conservative) risk-neutral exposures are designed for pricing. Banks sometimes use different assumptions for the calculation of CVA and for credit risk management purposes reflecting the different aims of these exercises. Basel 3 requires the calculation of CVA VAR and stressed VAR based on regulatory IMM exposure profiles and stressed exposure profiles. This is inconsistent with the way banks mark to market, measure risk of and hedge their CVA. The correct approach is to allow banks to use the sensitivities produced by their CVA models just as banks' valuation models are used in other advanced capital standards.

*6. Inappropriate capitalization of rating-based CVAs*

Banks that originate and manage their counterparty risk under an "originate to warehouse" type of business model do not utilize market credit spreads to calculate their CVA, but rather use indicators of credit quality such as internal ratings. The Basel 3 proposed CVA capital charge is therefore capitalizing a risk that those banks simply do not have: applying a "one size fits all" approach to this charge can lead to very perverse effects. First, the absence of consistency between the computation method of CVAs and the CVA capital charge would result in an artificial volatility either of capital requirements (if banks decide not to hedge those variations) or of P&L (if banks decide to purchase protection via CDS to hedge the counterparty risk and smooth the volatility of the new capital charge). In this situation, banks will be pushed by a regulatory provision to change their business model to adapt to this new capital charge and its embedded volatility. However, in most cases, this change in business model is simply not adapted to their portfolio of counterparties. This portfolio is often mostly constituted of end-users that are small corporates with a limited geographical focus whose counterparty risk is illiquid and likely not traded. Such a change to business models would also directly lead to an increase in end-users' cost of hedging since the CVA charge computed with market spreads will be a material additional cost and banks will pass on the cost of hedging the CVA charge. The net effect will be to create a much higher correlation between the cost of funding of those entities and market spreads.

**Proposed Approach in the Fundamental Review of the Trading Book**

- *Counterparty risk that is marked to market and hedged should be capitalized as part of the trading book*

We suggest that the counterparty risk that is marked to market and actively hedged be capitalized as a component of the trading book. The counterparty risk that is marked to market and actively hedged is *de facto* managed as trading risk by banks and it should be capitalized within the enhanced trading book framework. Thus for instance the IRC could substitute for the default-and-credit migration charge. This approach could also be widened to include banks using rating based CVA. VAR and stressed VAR (or a successor capital model) would measure the sensitivity of CVA to non-credit-risk factors, together with all hedges and the rest of the trading book. IRC would cover the risk from default and migration. Such a solution would provide a consistent framework for capitalizing all of trading activity, regardless of business models.

- *Mark to market for names that do not trade*

Over many years banks have evolved techniques to mark illiquid risks using similar (comparable) liquid and traded risks. Thus for instance it is common practice for banks to create synthetic/generic credit spread curves for various internal credit rating and industry sector categories. Banks use those curves to mark to market the credit risk of the illiquid counterparties. This type of marking is a bona fide attempt to accurately reflect

the fair value of the counterparty risks. It allows banks that manage their CVA under a trading book business model to impose the same discipline on the credit risk management of illiquid counterparty risks as on liquid ones. Banks may then hedge those generic curves since the curves are usually constructed based on liquid credit indices or comparable names' credit spread curves. By hedging the generic curves, banks mitigate the P&L impact of their marking those risks. Also, by hedging those generic credit spread curves, banks manage the systematic components of the credit spread risks of illiquid counterparties. The residual idiosyncratic risks, under our proposal above, would be captured by the IRC model since no name-specific jump-to-default hedges would be available for illiquid names.

- *Capitalization of rating-based CVAs*

As explained in paragraph 6, it is possible that a bank will have an "originate-to-warehouse" approach and hence compute its CVAs based on internal ratings for all or part of its counterparty risk portfolio. The capital framework should reflect this duality of approaches, i.e. be consistent with the risk that it seeks to cover: if the CVAs are computed based on market spreads, it is consistent to compute the CVA capital charge using those same market spreads; if the CVAs are computed using internal ratings (historical default probabilities and recovery rates), then the CVA capital charge should be based on historical parameters and not on market parameters. This could be done in a simple way that does not alter the Committee's proposals but simply adjust them to generate a capital charge that is consistent and commensurate with the risks born by banks that use rating-based CVAs. Alternatively, it could be achieved by adapting the market risk framework (notably the IRC model) to cater for rating based CVAs in a risk sensitive way.