

## Viewing SA-CCR from a practitioner's lens:

a panacea or upheaval for the  
regulatory capital

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**Our Point of View (PoV) document captures SA-CCR from the practical lens, wherein we:**

- ▶ compare SA-CCR with the most widely used existing approach: CEM
- ▶ explain the asset level impact of adopting SA-CCR for capital calculation
- ▶ list out the challenges and key considerations in SA-CCR implementation
- ▶ discuss the problems and potential solutions associated with SA-CCR

*We conclude by highlighting other opportunities that SA-CCR implementation presents to improve the existing infrastructure in banks*

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## Setting the stone

*The aftermath of the Global Financial Crisis (GFC) in 2007-2008 led to a major overhaul of the Basel norms. This in turn resulted in the emergence of Basel III, whose quintessential aim is to make banks and financial institutions capital resilient by introducing various novel and industry-relevant approaches to capital calculation. One of the key changes that came out from Basel III is 'SA-CCR', a standardized approach of calculating counterparty credit risk. SA-CCR will replace the existing standardized approaches, i.e., Current exposure Method' (CEM), Standardized Method (SM) and the original exposure method.*

*The GFC crisis exacerbated the necessity of repealing the existing standardized approaches for counterparty credit risk (CCR). In fact, the Basel Committee reported that one-third of the credit related losses in the 2008 crisis were due to the default and two-third were CVA related.*

*SA-CCR has already been implemented and is live across multiple jurisdictions while few other regulators are in the process of implementing this regulation for capital calculation. This PoV intends to serve as an additional reference point for the adoption of SA-CCR for capital calculation and highlights the impacts, challenges and potential opportunities.*

## Existing standardized approach - CEM

Current Exposure Method: Under CEM, regulatory capital is predominantly a function of Potential Future Exposure (PFE) and the replacement cost. PFE is calculated by measuring a derivative's potential future exposure, which is determined by applying a multiplier to its notional amount. The multiplier is given in a grid that divides the market into seven product types, namely Interest Rate, FX, Credit IG, Credit Non-IG, Equity, Precious Metal (except gold) and others and three buckets for remaining maturity i.e., zero to one year, one to five years and more than five years.

The CEM methodology allows for limited netting since capital can only be reduced by a maximum of 60% for perfectly offsetting open positions. Overall, CEM significantly overstates the capital requirement as it is not a risk sensitive approach and provides limited netting benefit. A move away from CEM was much warranted and every industry player across sizes was in need of a more sophisticated standardized method which can overcome the considerable shortcomings of CEM.

## SA-CCR: standardized yet exhaustive approach

SA-CCR is the new standardized/non modeled approach for the EAD calculation in CCR. It is also a notional driven and non-model approach but is comprehensive as it is more risk sensitive and helps in overcoming the deficiencies of the existing methods: CEM and SM. SA-CCR is intended to be more risk-sensitive, limit excessive variability of RWA calculations across institutions and narrow the gap between banks on the standardized approaches compared to their counterparts using Internal Model method. SA-CCR methodology has the upper hand as compared to CEM and SM primarily due to its ability to have the differentiation between margined and non-margined trades, more meaningful representation of netting and hedging benefits (unlike CEM which limits the netting benefit to 60%), and recognition of over collateralization and deep negative MTM's.

SA-CCR calculation primarily hinges on two parameters, i.e., Replacement cost (RC) and the Potential future exposure (PFE). Replacement cost in the current exposure calculation differs between a margined and non-margined transaction in a way that, for a margined case, RC incorporates the threshold and minimum transfer amount, unlike the unmargined case. PFE component requires a complex add-on calculation and aggregation logic and it is driven by the trade notional, delta (for nonlinear products), duration and the maturity adjustment. SA-CCR has resulted in a complete overhaul of the EAD calculations for derivatives portfolio. As a risk sensitive approach in comparison to CEM/SM, it requires quite a few new input parameters. Accurate calculation of SA-CCR depends upon the correct sourcing of input data and this depends upon the granularity of data available across business lines.

## SA-CCR: knock on impact

SA-CCR will replace CEM and SM across all geographies, but its impact is not just limited to the counterparty credit risk default capital charge. It has a far-reaching impact and has a much wider scope. SA-CCR framework impacts the way in which exposure is calculated and used to assess various risk metrics such as default risk charge, capital for credit valuation adjustments, large exposure reporting, leverage ratio calculation and finally the most influential-'*Output floor for capital*', where the capital is floored in a phased manner (for banks using advanced IMM approach for CCR capital computation), starting from 50% and reaching to penultimate level of 72.5% of Standardized approach [In the US this is called as Collin's Floor, which posts the constraint on capital to 100% of the standardized approach, i.e., higher of Standardized approach and advanced approach].

## SA-CCR: asset class impact assessment

Intent behind introducing of SA-CCR framework is to strengthen the banks' capital to absorb the unexpected/tail losses. The SA-CCR framework is not designed to reduce the capital requirement of the bank. Based on our experiences with multiple clients, we have listed below the impact of SA-CCR vs. CEM on exposure and capital requirements across the five identified asset classes under SA-CCR methodology. An indicative impact is provided, considering the single asset portfolio with no over-collateralization effect.

### Interest rates: Capital requirements ↑

Capital uptick for the interest rate portfolio is due to many factors, such as the limited offsetting benefits. Another crucial point that plays a role in increasing the capital requirement under SA-CCR is the adjustments to the notional for PFE calculations. Under IR portfolios, the notional for long-dated trades is increased multifold by applying duration unlike CEM and this results in skewed PFE numbers. Another interesting aspect is the impact of the basis on the directionality of the trades and the client types.

### FX: capital requirements ↑

A massive increase in the capital requirements for the FX portfolio is observed, especially for banks, which hold short-dated FX trades. The increase is predominantly driven by sub one year FX products, which attracts the same add-on as the long-dated FX trades. This shows that the institutions running on short-dated tenors are on the losing side. Other factors are the crosses and FX triangulation hedging and offsetting benefits. SA-CCR currently limits a hedging set to only transactions of the same currency pair, which overstates the risk in many crosses and triangular trades across currency pairs.

***For banks with large, short-dated FX portfolios, the impact of SA-CCR would be material. Banks need to use several efficiency levers to reduce the impact***

### Equities: capital requirements ↑

SA-CCR has provided a 'one-size fits all' add-on for both single stock equities (32%) and equity indices (20%). This does not account for the stratification in terms of risk and volatility underlying entities, for example, investment-grade vs. emerging market names – a distinction that is made for credit. Such limitation and a massive add-on factor have increased the capital requirements for equities. However, there is a relief in the form of inclusion of delta while determining the add-on, as banks can offset the directionally opposite positions, referencing the same underlying ones.

***Volatility transactions are the most impacted as the add-on factor increases by five times. Pair trading and correlation trading desk also have a massive impact due to the hedging and sub-hedging set rules under equities***

### Credit: capital requirements ↓

The capital requirements for credit are indicatively lower in SA-CCR as compared to CEM due to the different supervisory add-on factors according to the rating of the issuers. For example, an AAA-rated issuer will attract 0.38% supervisory add-on factor, which is way lower than the add-on factor in CEM. This shows that 'credit' is one of the big winners from SA-CCR onboarding.

### Commodity: capital requirements ↑

Higher supervisory factors and the hedging/sub-hedging set formation rules lead to massive capital impact for commodities. A 40% (highest) supervisory factor applies to electricity, while other commodities get 18% as supervisory factor. Due to the hedging and sub-hedging rules, netting is not permitted between exchanges, and so firms that actively trade across different markets are subject to higher capital requirements.

## SA-CCR: onboarding and continuing challenges

Onboarding and monitoring of the SA-CCR possess challenges primarily on three fronts – data, system architecture, and tools and calculators. Appropriate granularity of data, capability of systems to integrate various inputs and a tool or calculator to process all the information and produce the desired output per regulatory guidelines.

**Data:** Sourcing and accuracy of trade level attributes is of immense importance to ensure a complete and accurate SA-CCR calculations. On account of being more risk sensitive than CEM, more granular data such as underlying of equity, credit, spot and strike price details for equity options, is required in SA-CCR. In CEM, these granular details are not required. Establishing the golden sources and feeds to source this information can be pivotal to migrate from CEM to SA-CCR.

Apart from the trade level attributes, netting and collateral information flow assessment are also required for SA-CCR. Unlike CEM, SA-CCR differentiates between a margined and unmargined transactions. SA-CCR incorporates the initial margin over and above the variation margin. It also requires capturing detailing like close-out period, collateral to market, settle to market, MTA and thresholds, etc.

**Systems architecture:** It is usually common to have the data coming from numerous disparate legacy systems, for example, information for equities will come from different systems as compared to fixed income products and thus a common Product aggregator is required.

Data cleaning is of pivotal importance when we deal with large sets of data. Systems should have the capability to run the data quality checks on the product aggregator to flag the gaps.

Banks should have appropriate systems to run the integration of trade level attributes with netting and collateral details to pass onto the SA-CCR calculator.

SA-CCR approach requires a significant number of data attributes and calculations are more complex than the existing standardized approach. This would require upgradation of the system to accommodate the additional attributes required for SA-CCR EAD calculations.

**Tools and calculators:** Finally, bank will need a SA-CCR calculator or tool that sits on top of a bank's existing/enhanced architecture, consumes data from its systems and performs calculations on large amounts of data. The strategic tool should not only provide the final output but could produce intermediate level calculations such as PFE, RC, multiplier, add-on aggregate, supervisory delta, supervisory duration, margin and factor. With SA-CCR becoming an integral part of capital management, banks should aim to have a more sophisticated tool either in-house or third party.

Such tool will perform the SA-CCR calculation and can run the 'What-if' simulations for capital impact assessments, with ability to drill down to any metric across geography, legal entity structure, desk, portfolio, book, all the way down to the trade level details and view the incremental impact on SA-CCR.

The ability of the tool to allocate SA-CCR exposure (EAD), at sub-business level, is also desired for capital allocation, demand and supply planning, and return to allocation capital calculations.

## Potential solutions to the SA-CCR problems

Though SA-CCR is no panacea for the capital woes raised by banks over CEM and SM, it is still an improvisation from the existing methods. It warrants an overhaul of the bank's systems and architecture and has a massive capital uptick as compared to IMM and, in some cases, over CEM. The capital impact can be exacerbated if the methodology interpretation or implementation is incorrect.

Highlighted below are some challenges faced by banks and potential solutions developed during the implementation phase

### Data quality

**Missing input:** Banks need to develop a solution to enrich the input data, such as the identification and flagging of single name and Index equity underlying to ensure correct PFE calculation. This can provide a plausible capital relief on the identified netting sets. Such solutions, if applied to the equity dominant portfolio, can provide capital relief to the tune of c.40%!

**Fallback values:** Appropriate assessment and application of the fallback values in case of any missing mandatory input parameters for the SA-CCR calculation. Exotic equity desk observed a massive uptick in their portfolio capital on account of default logic applied to the delta for barrier options. In the absence of the strike, barrier level and spot information, a delta of +/-1 is assigned for add on calculation, which resulted in the loss of option sensitivity and leads to more punitive capital numbers. An appropriate assessment for the chosen fallback values, along with improvisation on sourcing, across inputs and asset classes shall ensure punitive treatment but not the massive eruption of capital.

### System capabilities

**Notional:** SA-CCR demands complex calculations of various parameters, which ultimately gives EAD as an output. One of the key data elements for the standardized approach is the trade notional. Some transactions require amortizing or accreting notional and thus banks' systems should be able to generate such notionals for accurate SA-CCR PFE and EAD computations.

**Delta for non-linear products:** Another challenge observed is the ability of the banks' system to calculate the Option delta of the negative Interest rate currencies as per the defined BSM close form solution. BCBS has published additional guidelines to take care of the delta for negative IR options. However it largely depends on how the revised calculation methodology is embedded in bank's existing systems. Banks develop a rational approach of uplifting the negative spot/strike by some pre-defined factors, which are based on the currency and calibration exercise.

This does not require the complete overhaul, but rather an enhanced sourcing of some additional parameters for delta calculations.

### Methodology and Modelling

**Volatility Transactions:** Pair trading or correlation trading of equities has a massive impact on account of limited to no offsetting benefits between the long and short legs, as per the SA-CCR rules. Banks can explore trade/product re-engineered solution basis the primary risk driver of the trade, which enables the correct assignment of the asset class. An equity volatility transaction can increase the exposure by up to five times.

**No PFE trades:** A similar exercise can be performed to disentangle the transactions which do not carry any potential future exposure and thus the exposure should be driven by the replacement cost only. For certain transaction type e.g., for cash flow trades, which are usually fixed fees or premiums associated with options, the determination of asset class based on the pricing model is not prudent. Rather, such trades shall be assigned with Non PFE asset class as there would not be any future volatility.

**FX book:** One of the major concerns that has been observed across the banking industry is the impact of SA-CCR on the FX portfolio. SA-CCR provides a blanket approach of assigning a single add-on factor which has diluted the risk profiling between the long and short dated FX transactions. Many global banks and

institutions are active on short-dated FX trades and thus would have a material capital impact. Though the gravity of impact depends upon the client type and the exact trade type, most banks are currently facing this issue. In fact, the impact is much harsher in the US on account of the Collins Floor, an amendment to the Dodd-Frank Act that requires the US banks to calculate risk-weighted assets (RWAs) for counterparty credit risk by applying a more punitive capital output of their internal model or a standardized model approved by regulators. An additional consideration is a calculation of the leverage ratio, which will now use SA-CCR to calculate the derivatives exposure instead of CEM.

Some capital relief can be explored via solutions which revolve around the feasibility of notional compressions, either using the vendor-based solutions or enhancement to in-house capabilities. Another approach is to deploy the re-engineering of the FX trade either to further decompose the transactions or layer it up to achieve the offsetting benefits.

## Opportunities on the way with SA-CCR and the way forward

With SA-CCR requiring granular trade level data, it gives an opportunity to the banks to look at its architecture, systems, aggregators, and data for capital optimization. Banks can focus on the points listed below as an opportunity for capital optimization under SA-CCR

- ▶ **Critical Data Elements (CDE)** definition from SA-CCR perspective and CCR in general (this will be on the top of BCBS 239 requirements)
- ▶ **Sourcing** of the identified CDEs with completeness and accuracy at its core
- ▶ **Trade booking** assessments and portfolio re-engineering opportunity
- ▶ **Legal systems** assessments to ensure multiple netting agreements and assessment of various netting jurisdictions
- ▶ **Robust Collateral Management** such as correct calculation of margin calls with accurate trade coverage
- ▶ **MPOR optimization**, for example, correct identification of hard to replace trades and optimizing number and type of trades in a netting set
- ▶ **Addressing data quality** issues such as correctly capturing the Trade level notional, its currency, strike price, spot price, etc.

Regulators across the board are uncertain when it comes to the accuracy of internal models. In fact, BCBS has taken out advanced approaches from the Operational Risk and CVA capital calculation frameworks but has retained the same for market risk, counterparty credit risk, and credit risk. BCBS has further introduced an output floor and requires banks using the advanced approaches to maintain capital equivalent to at least 72.5% of what their requirements would be if they used the standardized approaches, the idea being to limit the use of internal model-based approaches. As regulators are trying to reduce the reliance on advanced approaches, they are making the standardized approaches risk sensitive, which is seen in the case of newly introduced regulations like FRTB SA and SA-CCR and require calculations at the risk factor level.

### Some parting thoughts

SA-CCR is clearly an improvisation over CEM and SM. Given the regulators push towards usage of more standardized approaches for multiple reasons, the push for adoption of SA-CCR framework will increase multi-fold across the globe. Given the capital pressures, each bank is looking for RWA optimization and running big multi-year programs around the same. The transition from CEM to SA-CCR would require subject matter advisors to provide guidance on several challenges around data, system enhancements, trades compression logic etc., so that it will improve the profitability of the banks as well as regulatory compliance.

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