Deutsche Bank
Group Technology & Operations

Going from CEM to SA-CCR:

Is your bank ready for quite a jump in terms of the IT infrastructure?

Arthur Rabatin

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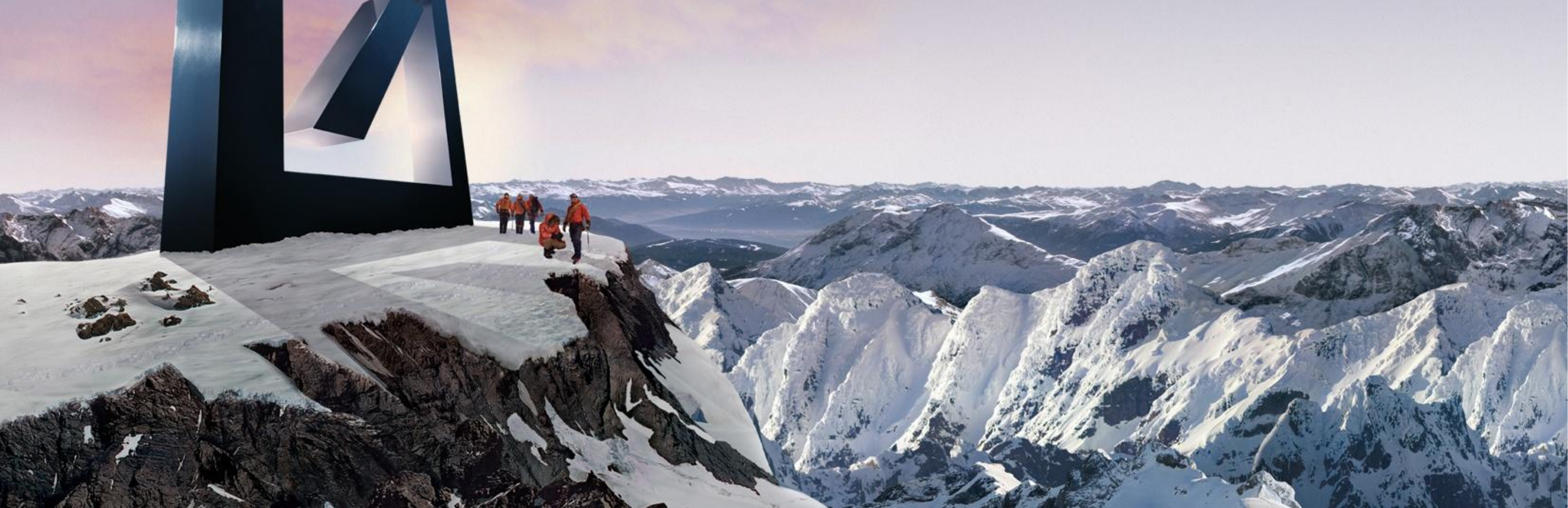

Document Impressum

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Document Author: Arthur Rabatin

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Life is really simple, but we insist on making it complicated.

Confucius (551 BC – 479 BC), on the topic of post-crisis Financial Regulation

What is new in SA-CCR vs. CEM, SM

- Risk Sensitive Treatment of Collateral and recognition of initial margin
  - Margining (Variation and Excess Margin through Initial Margin) impacts both Replacement cost and PFE Add-on

- Introduction of “Hedging Sets” in definition of netting within asset class (but no diversification allowance across asset classes)

- Prescriptive workflow to calculate PFE Add-ons, reducing the discretion of local regulators.

- Recognition of negative MTM and new supervisory factors reflecting post crisis volatility

SA-CCR – Some Definitions

$$EAD = 1.4 * (RC + PFE)$$

$$RC = \max (V\text{-}C; TH + MTA – NCIA; 0)$$

$$PFE = \textit{Multiplier} * AddOn^{aggregate}$$

The *Multiplier* (≤ 1) allows for a reduction of exposure due to overcollateralization through initial margin, with a floor of 5% of V.

AddOn^{aggregate} is the sum of all add-ons per asset class. No netting across asset classes allowed.

The EAD is multiplied with the risk weight of the counterparty to determine the RWA amount.

EAD is calculated per Netting Set

EAD *Exposure at Default*
RC *Replacement Cost (At Netting Set Level)*
PFE *Potential Future Exposure*
V *Mark to Market Value*
C *Haircut value of Collateral (i.e. Cash Equivalent)*
TH *Threshold Amount (For Collateralisation)*
MTA *Minimum Transfer Amount of Collateral*
NICA *Net Independent Collateral Amount*

NICA is defined as (Collateral Received minus unsegregated Collateral Posted). Segregated Collateral posted is expected to be returned on counterparty default and not included. (PS: MF Global anyone?) One-way margining agreements in favour of a banks counterparty are considered unmargined under SA-CCR

The terms C, TH, MTA, NCIA are zero for uncollateralised transactions.

Add-on Calculation – Schematic Workflow

Disaggregate Transactions

- Determine transactions in netting set
- Determine primary risk driver (asset class) per trade and create trade level view per asset class
- Decide treatment of hybrid transactions (either define primary risk driver or agree split of exposure with local regulator)

Define trade level notional and Maturity Factors

- Apply supervisory duration (IR and Credit Derivatives only)
- Standardise trade notional for FX, Equities, Commodities
- Standardise trade notional for swaps with variable notional
- Unmargined - Apply standardised maturity factors
- Margined – Calculate standardised Margin Period of Risk
- Apply Supervisory Delta

Aggregate back into Netting Set level Exposure Add-on

- Calculate Effective Notional by aggregating delta adjusted notional per bucket defined in defined hedging set
- Multiply Effective Notional with Supervisory factor per asset class -> yields the add-on per hedging set
- Simple Summation of all add-ons per hedging yields Add-on (aggregate)

Key Data Challenges - Instrument

- SA-CCR Relevance:
  - Identification of Asset Classes and Sub Asset Classes via Primary Risk Drivers
  - Identification of Hedging Sets
  - Maturity dates of Option Underlies
  - Index Composition

- Instrument Reference Data often exist in multiple Systems

- Lack of true “Golden Sources” across Front Office and Control Functions

- Multiple “Translation” and “Mapping” Layers to convert between different reference data repositories – creating operational risk

Key Data Challenges – Client Data

- SA-CCR Relevance:
  - Margining relevant for RC and PFE Add-On Calculation
  - Details of CSA matter
    - Threshold Amounts
    - MTA
    - Initial Margin
    - Collateral Segregation

- Many CSA Agreements were signed before CSAs became relevant for pricing (CSA Discounting, xVA Pricing)

- Data Quality around CSA generally seen as issue when automating processes (Many legal agreements exist as PDF docs with manual corrections)

- Interpretation of Legal Agreement data in the organisation has evolved as use of CSAs and Legal Agreements has become more relevant to Pricing and Risk Management

Adoption Strategy

- Early Business Engagement and early collaboration between Credit Risk, Collateral, Trading, Operations, Technology, and Chief Data Office

- Front Office Awareness and Acceptance of Risk Factor Standardisation and Mapping

- Identify trading book asset classes – define primary risk drivers in hybrid books and sub-asset classes in commodities

- Expect Iterative Development and Testing Process - and expect testing time to be significant longer than development time.

- Separate rule definition from calculation implementation (helped by prescriptive nature of SA-CCR) – allows prototyping of calculations on smaller subset of data and testing of marginal calculations

Opportunities of Getting “IT” Right

- Sensitivities based calculations will remain a key requirement for other regulatory calculations:
  - FRTB SA for Market Risk
  - Initial Margining for Uncleared OTC

- Sensitivities and clean reference data for traded instruments will be key to comply with reporting regulations, such as
  Volcker/RENT-D,
  BCBS 239

- Correct client reference data (such as CSA and netting agreements) only continue to gain in importance for active pricing and risk management
  - CVA / FVA Calculation
  - Collateral Value Adjustment
  - Competitive Cross Margining
  - CSA based Discounting
  - Most cost effective collateral

Don't mistake precision for accuracy: Correct maths makes the calculation precise. Correct data make the calculation accurate.

A Rabatin,
IT Manager (1969 -), on the topic of IT Challenges in post-crisis Financial Regulation