Basel III Framework

Capital requirement for bank exposures

to central counterparties

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Regulatory Framework

- *International level*: Basel Committee on Banking Supervision

  - *Standardised approach: credit risk mitigation* (CRE 22)

  - *Standardised approach to counterparty credit risk* (CRE 52)

  - *Capital requirements for bank exposures to central counterparties* (CRE 54)

- *EU level*:

  - Regulation EU 648/2012

  - Regulation EU 575/2013, on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012

  - Regulation EU 876/2019, amending Regulation (EU) No 575/2013

Two exposures types are envisaged by the outstanding Framework, amended by Regulation 876/2019:

Changed

| Default Fund exposures | CCP Default risk CMs Default risk |

- For **Derivatives sections**, revised K_{CCP} calculation methodology, by transposing *Standardized Approach for measuring Counterparty Credit Risk* ("SA-CCR").

- For **Fixed Income section**, Kccp calculation methodology envisages application of *Financial Collateral Comprehensive Method*.

Unchanged

| Trade exposures | CCP Default risk |

- Trade exposures include **variation margin** due by the CCP to the Clearing Member or to the client, but not yet received, as well as **initial margin** posted

- If collateral is "**bankruptcy remote**" (i.e. if the CCP defaults, the Clearing Member does not lose the collateral), **the risk weight applied to the collateral is 0%**

- **A 0% risk weight is applied to margins collected by CC&G**

Calculation of Hypothetical Capital

Changed

Derivatives sections
(for CC&G, futures/options)

$$K_{CCP} = \sum_{CMi} EAD_i * RW * CR$$

where EAD_i is calculated according to
**Standardized Approach
for Counterparty Credit Risk (SA-CCR)**

Introduced by Regulation EU 876/2019

Unchanged

Fixed Income section
(for CC&G, Repos)

$$K_{CCP} = \sum_{CMi} \max(EBRM_i - IM_i - DF_i; 0) * RW * CR$$

where $\max(EBRM_i - IM_i - DF_i; 0)$ is calculated according to
Financial Collateral Comprehensive Method

Introduced by Regulation EU 575/2013

For derivatives exposures, the **New Standardized Approach (SA-CCR)** for measuring exposure at default (EAD) for counterparty credit risk (CCR) replaced both standardized methods in force: Current Exposures Method (CEM) and Standardized Method (SM).

Main objectives of the SA-CCR approach:

- Devise an approach suitable for a wide variety of derivatives transactions

- Address known limits of the CEM

- Improve the risk sensitivity of the capital framework

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Exposure at Default for Derivatives sections

Standardized Approach for Counterparty Credit Risk

Exposure at Default: $EAD = 1.4 * (RC + PFE)$

Replacement cost: $RC = max(V - C; 0)$

The loss that would occur if a counterparty were to default at the present or at a future time, if closeout and replacement of transactions occur instantaneously

- From a CC&G perspective, V consists of CMs' net variation margins on Futures and net Options premiums.
- C is the overall collateral posted by the Clearing Member (covering Initial Margins and Default Funds). C includes also excess collateral.

Potential Future Exposure $PFE = m * AddOn$

Potential change in value of the trades during the period between the last exchange of collateral before default and replacement of the trades in the market

- m allows reduction of PFE, how much more collateral is posted by CMs over the required amounts.
- $AddOn$:
  - represents a potential conservative increase in CCP's exposure, over the time horizon needed to close-out positions of the defaulting CM
  - allows a full risk offset when trades lie within the same underlying and a partial offset between trades stemming from different underlying
  - it is a function of trade's adjusted notional, time horizon needed for position's close-out, product's delta and a supervisory factor reflecting volatility.

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Exposure at Default for Fixed Income section

Financial Collateral Comprehensive method

For collateralised transactions like Repurchase Agreements, the exposure amount after risk mitigation is calculated as follows:

$$EBRM = max\{0, E * (1 + H_e) - C * (1 - H_c - H_{fx})\}$$

where:

$EBRM$ = the exposure value before the risk mitigation of Initial Margins and Default Fund

E = current value of the exposure

H_e = volatility adjustment appropriate to the exposure (depends on residual maturity, rating class and liquidation period)

C = the current value of the collateral

H_c = haircut appropriate to the collateral (depends on residual maturity, rating class and liquidation period)

H_{fx} = haircut appropriate for currency mismatch between the collateral and fx exposure

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Calculation of C-factor

$$c - factor = max\left(\frac{K_{CCP}}{DF_{CCP} + DF_{CM}}; 8\% * 2\%\right)$$

Amended by Regulation EU 876/2019

where

- DF_{CM} = total DF contributions
- DF_{CCP} = CCP Skin-in-The-Game
- K_{CCP} = CCP Hypothetical Capital
- K_{CM} depends on K_{CCP} level compared to DF_{CCP} and DF_{CM}

Main changes of new c-factor calculation formula:

- A floor on capital coefficient is established (equal to 0.16%)
- Concentration Factor β is no longer applied
- K_{CCP} is directly involved in c-factor calculation
- K_{CCP} is calculated at sub-account level

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Focus on Equity Derivatives Asset Class

SA-CCR vs Current Exposure Method

- Simulation on Equity Derivatives C-factor under new SA-CCR, highlight **very low risk weights** to calculate each CM Capital Requirement (Mar-May 2021)

- In the simulation period C-factor settles down to the floor value, equal to 0.16%

- Under *SA-CCR* c-factor is lower than under *CEM*

- The prudential amount of CC&G Default Funds contributes to have very low levels of C-factors

- **Central Clearing through CC&G allows significant savings in Capital Requirements**

Reference date	C-factor comparison	
	CEM	SA-CCR
Mar-21	0.22%	0.16%
Apr-21	0.21%	0.16%
May-21	0.39%	0.16%
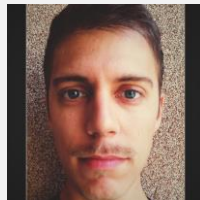
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