

Basel Committee on Banking Supervision

CRE

Calculation of RWA for credit risk

CRE54

Capital requirements for bank exposures to central counterparties

This chapter sets out the calculation of capital requirements for bank exposures to central counterparties.

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BANK FOR INTERNATIONAL SETTLEMENTS

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Scope of application

54.1

This chapter applies to exposures to central counterparties arising from over-the-counter (OTC) derivatives, exchange-traded derivatives transactions, securities financing transactions (SFTs) and long settlement transactions. Exposures arising from the settlement of cash transactions (equities, fixed income, spot foreign exchange and spot commodities) are not subject to this treatment.¹ The settlement of cash transactions remains subject to the treatment described [CRE70](#).

1 Footnote

- [1](#) *For contributions to prepaid default funds covering settlement-risk-only products, the applicable risk weight is 0%.*

54.2

When the clearing member-to-client leg of an exchange-traded derivatives transaction is conducted under a bilateral agreement, both the client bank and the clearing member are to capitalise that transaction as an OTC derivative.² This treatment also applies to transactions between lower-level clients and higher-level clients in a multi-level client structure.

1 Footnote

- [2](#) *For this purpose, the treatment in [CRE54.12](#) would also apply.*

Central Counterparties

54.3

Regardless of whether a central counterparty (CCP) is classified as a qualifying CCP (QCCP), a bank retains the responsibility to ensure that it maintains adequate capital for its exposures. Under the supervisory review process standard ([SRP](#)), a bank should consider whether it might need to hold capital in excess of the minimum capital requirements if, for example:

1. its dealings with a CCP give rise to more risky exposures;
2. where, given the context of that bank's dealings, it is unclear that the CCP meets the definition of a QCCP; or
3. an external assessment such as an International Monetary Fund Financial Sector Assessment Program has found material shortcomings in the CCP or the regulation of CCPs, and the CCP and/or the CCP regulator have not since publicly addressed the issues identified.

54.4

Where the bank is acting as a clearing member, the bank should assess through appropriate scenario analysis and stress testing whether the level of capital held against exposures to a CCP adequately addresses the inherent risks of those transactions. This assessment will include potential future or contingent exposures resulting from future drawings on default fund commitments, and/or from secondary commitments to take over or replace offsetting transactions from clients of another clearing member in case of this clearing member defaulting or becoming insolvent.

54.5

A bank must monitor and report to senior management and the appropriate committee of the Board on a regular basis all of its exposures to CCPs, including exposures arising from trading through a CCP and exposures arising from CCP membership obligations such as default fund contributions.

54.6

Where a bank is clearing derivative, SFT and/or long settlement transactions through a QCCP as defined in [CRE50](#), then [CRE54.7](#) to [CRE54.40](#) will apply. In the case of non-qualifying CCPs, [CRE54.41](#) and [CRE54.42](#) will apply. Within three months of a CCP ceasing to qualify as a QCCP, unless a bank's national supervisor requires otherwise, the trades with a former QCCP may continue to be capitalised as though they are with a QCCP. After that time, the bank's exposures with such a central counterparty must be capitalised according to paragraphs [CRE54.41](#) and [CRE54.42](#).

Exposures to Qualifying CCPs : trade exposures

Clearing member exposures to CCPs

54.7

Where a bank acts as a clearing member of a CCP for its own purposes, a risk weight of 2% must be applied to the bank's trade exposure to the CCP in respect of OTC derivatives, exchange-traded derivative transactions, SFTs and long-settlement transactions. Where the clearing member offers clearing services to clients, the 2% risk weight also applies to the clearing member's trade exposure to the CCP that arises when the clearing member is obligated to reimburse the client for any losses suffered due to changes in the value of its transactions in the event that the CCP defaults. The risk weight applied to collateral posted to the CCP by the bank must be determined in accordance with paragraphs [CRE54.18](#) to [CRE54.23](#).

54.8

The exposure amount for a bank's trade exposure is to be calculated in accordance with methods set out in the counterparty credit risk chapters of the Basel framework (see paragraph [CRE51.8](#)), as consistently applied by the bank in the ordinary course of its business.³ In applying these methods:

1. Provided that the netting set does not contain illiquid collateral or exotic trades and provided there are no disputed trades, the 20-day floor for the margin period of risk (MPOR) established for netting sets where the number of trades exceeds 5000 does not apply. This floor is set out in [CRE52.51](#)(1) of the standardised approach for counterparty credit risk (SA-CCR), [CRE22.61](#) of comprehensive approach within the standardised approach to credit risk and [CRE53.24](#)(1) of the internal models method (IMM).
2. In all cases, a minimum MPOR of 10 days must be used for the calculation of trade exposures to CCPs for OTC derivatives.
3. Where CCPs retain variation margin against certain trades (eg where CCPs collect and hold variation margin against positions in exchange-traded or OTC forwards), and the member collateral is not protected against the insolvency of the CCP, the minimum time risk horizon applied to banks' trade exposures on those trades must be the lesser of one year and the remaining maturity of the transaction, with a floor of 10 business days.

1 Footnote

- [3](#) *Where the firm's internal model permission does not specifically cover centrally cleared products, the IMM scope would have to be extended to cover these products (even where the non-centrally cleared versions are included in the permission). Usually, national supervisors have a well defined model approval/change process by which IMM firms can extend the products covered within their IMM scope. The introduction of a centrally cleared version of a product within the existing IMM scope must be considered as part of such a model change process, as opposed to a natural extension.*

54.9

The methods for calculating counterparty credit risk exposures (see [CRE51.8](#)), when applied to bilateral trading exposures (ie non-CCP counterparties), require banks to calculate exposures for each individual netting set. However, netting arrangements for CCPs are not as standardised as those for OTC netting agreements in the context of bilateral trading. As a consequence, paragraph [CRE54.10](#) below makes certain adjustments to the methods for calculating counterparty credit risk exposure to permit netting under certain conditions for exposures to CCPs.

54.10

Where settlement is legally enforceable on a net basis in an event of default and regardless of whether the counterparty is insolvent or bankrupt, the total replacement cost of all contracts relevant to the trade exposure determination can be calculated as a net replacement cost if the applicable close-out netting sets meet the requirements set out in:

1. Paragraphs [CRE22.69](#) and, where applicable, also [CRE22.70](#) in the case of repo-style transactions.
2. [CRE52.7](#) and [CRE52.8](#) of the SA-CCR in the case of derivative transactions.
3. [CRE53.61](#) to [CRE53.71](#) of IMM in the case of cross-product netting.

54.11

To the extent that the rules referenced in [CRE54.10](#) above include the term “master agreement” or the phrase “a netting contract with a counterparty or other agreement”, this terminology must be read as including any enforceable arrangement that provides legally enforceable rights of set-off. If the bank cannot demonstrate that netting agreements meet these requirements, each single transaction will be regarded as a netting set of its own for the calculation of trade exposure.

Clearing member exposures to clients

54.12

The clearing member will always capitalise its exposure (including potential credit valuation adjustment, or CVA, risk exposure) to clients as bilateral trades, irrespective of whether the clearing member guarantees the trade or acts as an intermediary between the client and the CCP. However, to recognise the shorter close-out period for cleared client transactions, clearing members can capitalise the exposure to their clients applying a margin period of risk of at least five days in IMM or SA-CCR. The reduced exposure at default (EAD) should also be used for the calculation of both the Advanced and Standardised CVA capital requirement.

54.13

If a clearing member collects collateral from a client for client cleared trades and this collateral is passed on to the CCP, the clearing member may recognise this collateral for both the CCP-clearing member leg and the clearing member-client leg of the client cleared trade. Therefore, initial margin posted by clients to their clearing member mitigates the exposure the clearing member has against these clients. The same treatment applies, in an analogous fashion, to multi-level client structures (between a higher-level client and a lower-level client).

1 FAQ

- FAQ1** *What treatment must a clearing member bank apply to collateral that is collected from a client of the clearing member and posted to a CCP, but that is not held in a bankruptcy-remote manner, where the clearing member is not obligated to reimburse the client for any losses due to changes in the value of its transactions in the event that the CCP defaults?*
- If the clearing member bank is not obligated to reimburse the client for any loss of such posted collateral in the event that the CCP defaults, the clearing member bank is not subject to capital requirements for the posted collateral. If the clearing member bank is obligated to reimburse the client for any loss of posted collateral in the event the CCP defaults, the clearing member bank should compute the capital requirement for the posted collateral held by the CCP as an exposure to the CCP.*

Client exposures

54.14

Subject to the two conditions set out in [CRE54.15](#) below being met, the treatment set out in [CRE54.7](#) to [CRE54.11](#) (ie the treatment of clearing member exposures to CCPs) also applies to the following:

1. A bank's exposure to a clearing member where:
 1. the bank is a client of the clearing member; and
 2. the transactions arise as a result of the clearing member acting as a financial intermediary (ie the clearing member completes an offsetting transaction with a CCP).
2. A bank's exposure to a CCP resulting from a transaction with the CCP where:
 1. the bank is a client of a clearing member; and
 2. the clearing member guarantees the performance the bank's exposure to the CCP.
3. Exposures of lower level clients to higher level clients in a multi-level client structure, provided that for all client levels in-between the two conditions in [CRE54.15](#) below are met.

54.15

The two conditions referenced in [CRE54.14](#) above are:

1. The offsetting transactions are identified by the CCP as client transactions and collateral to support them is held by the CCP and/or the clearing member, as applicable, under arrangements that prevent any losses to the client due to: (a) the default or insolvency of the clearing member; (b) the default or insolvency of the clearing member's other clients; and (c) the joint default or insolvency of the clearing member and any of its other

clients. Regarding the condition set out in this paragraph:

1. Upon the insolvency of the clearing member, there must be no legal impediment (other than the need to obtain a court order to which the client is entitled) to the transfer of the collateral belonging to clients of a defaulting clearing member to the CCP, to one or more other surviving clearing members or to the client or the client's nominee. National supervisors should be consulted to determine whether this is achieved based on particular facts and such supervisors should consult and communicate with other supervisors via the "frequently asked questions" process to ensure consistency.
 2. The client must have conducted a sufficient legal review (and undertake such further review as necessary to ensure continuing enforceability) and have a well founded basis to conclude that, in the event of legal challenge, the relevant courts and administrative authorities would find that such arrangements mentioned above would be legal, valid, binding and enforceable under the relevant laws of the relevant jurisdiction(s).
2. Relevant laws, regulation, rules, contractual, or administrative arrangements provide that the offsetting transactions with the defaulted or insolvent clearing member are highly likely to continue to be indirectly transacted through the CCP, or by the CCP, if the clearing member defaults or becomes insolvent. In such circumstances, the client positions and collateral with the CCP will be transferred at market value unless the client requests to close out the position at market value. Regarding the condition set out in this paragraph, if there is a clear precedent for transactions being ported at a CCP and industry intent for this practice to continue, then these factors must be considered when assessing if trades are highly likely to be ported. The fact that CCP documentation does not prohibit client trades from being ported is not sufficient to say they are highly likely to be ported.

54.16

Where a client is not protected from losses in the case that the clearing member and another client of the clearing member jointly default or become jointly insolvent, but all other conditions in the preceding paragraph are met, a risk weight of 4% will apply to the client's exposure to the clearing member, or to the higher level client, respectively.

1 FAQ

- FAQ1 What is the applicable capital treatment for collateral posted by a bank as a client of a clearing member and held at the qualifying CCP, where conditions set out in [CRE54.15](#) and [CRE54.16](#) are not met?*
- Where the collateral is posted by a bank as a client of a clearing member and held at the qualifying CCP not in a bankruptcy remote manner and where it does not meet the conditions set out in [CRE54.15](#) and [CRE54.16](#), the bank must apply the risk weight of the clearing member to those collateral exposures.*

54.17

Where the bank is a client of the clearing member and the requirements in [CRE54.14](#) to [CRE54.16](#) above are not met, the bank will capitalise its exposure (including potential CVA risk exposure) to the clearing member as a bilateral trade.

Treatment of posted collateral

54.18

In all cases, any assets or collateral posted must, from the perspective of the bank posting such collateral, receive the risk weights that otherwise applies to such assets or collateral under the capital adequacy framework, regardless of the fact that such assets have been posted as collateral. That is, collateral posted must receive the banking book or trading book treatment it would receive if it had not been posted to the CCP.

54.19

In addition to the requirements of [CRE54.18](#) above, the posted assets or collateral are subject to the counterparty credit risk requirements, regardless of whether they are in the banking or trading book. This includes the increase in the counterparty credit risk exposure due to the application of haircuts. The counterparty credit risk requirements arise where assets or collateral of a clearing member or client are posted with a CCP or a clearing member and are not held in a bankruptcy-remote manner. In such cases, the bank posting such assets or collateral must recognise credit risk based upon the assets or collateral being exposed to risk of loss based on the creditworthiness of the entity holding such assets or collateral, as described further below.

54.20

Where such collateral is included in the definition of trade exposures (see [CRE50](#)) and the entity holding the collateral is the CCP, the following risk weights apply where the assets or collateral is not held on a bankruptcy-remote basis:

1. For banks that are clearing members a risk-weight of 2% applies.
2. For banks that are clients of clearing members:
 1. a 2% risk-weight applies if the conditions established in [CRE54.14](#) and [CRE54.15](#) are met; or
 2. a 4% risk-weight applies if the conditions in [CRE54.16](#) are met.

54.21

Where such collateral is included in the definition of trade exposures (see [CRE50](#)), there is no capital requirement for counterparty credit risk exposure (ie the related risk weight or EAD is equal to zero) if the collateral is: (a) held by a custodian; and (b) bankruptcy remote from the CCP. Regarding this paragraph:

1. All forms of collateral are included, such as: cash, securities, other pledged assets, and excess initial or variation margin, also called overcollateralisation.
2. The word “custodian” may include a trustee, agent, pledgee, secured creditor or any other person that holds property in a way that does not give such person a beneficial interest in such property and will not result in such property being subject to legally enforceable claims by such persons creditors, or to a court-ordered stay of the return of such property, if such person becomes insolvent or bankrupt.

54.22

The relevant risk-weight of the CCP will apply to assets or collateral posted by a bank that do not meet the definition of trade exposures (for example treating the exposure as a financial institution under standardised approach or internal ratings-based approach to credit risk).

54.23

Regarding the calculation of the exposure, or EAD, where banks use the SA-CCR to calculate

exposures, collateral posted which is not held in a bankruptcy remote manner must be accounted for in the net independent collateral amount term in accordance with [CRE52.15](#) to [CRE52.19](#). For banks using IMM models, the alpha multiplier must be applied to the exposure on posted collateral.

Default fund exposures

54.24

Where a default fund is shared between products or types of business with settlement risk only (eg equities and bonds) and products or types of business which give rise to counterparty credit risk ie OTC derivatives, exchange-traded derivatives, SFTs or long settlement transactions, all of the default fund contributions will receive the risk weight determined according to the formulae and methodology set forth below, without apportioning to different classes or types of business or products. However, where the default fund contributions from clearing members are segregated by product types and only accessible for specific product types, the capital requirements for those default fund exposures determined according to the formulae and methodology set forth below must be calculated for each specific product giving rise to counterparty credit risk. In case the CCP's prefunded own resources are shared among product types, the CCP will have to allocate those funds to each of the calculations, in proportion to the respective product-specific EAD.

54.25

Whenever a bank is required to capitalise for exposures arising from default fund contributions to a qualifying CCP, clearing member banks will apply the following approach.

54.26

Clearing member banks will apply a risk weight to their default fund contributions determined according to a risk sensitive formula that considers (i) the size and quality of a qualifying CCP's financial resources, (ii) the counterparty credit risk exposures of such CCP, and (iii) the application of such financial resources via the CCP's loss bearing waterfall, in the case of one or more clearing member defaults. The clearing member bank's risk sensitive capital requirement for its default fund contribution (K_{CMi}) must be calculated using the formulae and methodology set forth below. This calculation may be performed by a CCP, bank, supervisor or other body with access to the required data, as long as the conditions in [CRE54.37](#) to [CRE54.39](#) are met.

54.27

The clearing member bank's risk sensitive capital requirement for its default fund contribution (K_{CMi}) is calculated in two steps:

1. Calculate the hypothetical capital requirement of the CCP due to its counterparty credit risk exposures to all of its clearing members and their clients.
2. Calculate the capital requirement for the clearing member bank.

Hypothetical capital requirement of the CCP

54.28

The first step in calculating the clearing member bank's capital requirement for its default fund contribution (K_{CMi}) is to calculate the hypothetical capital requirement of the CCP (K_{CCP}) due to

its counterparty credit risk exposures to all of its clearing members and their clients. K_{CCP} is a hypothetical capital requirement for a CCP, calculated on a consistent basis for the sole purpose of determining the capitalisation of clearing member default fund contributions; it does not represent the actual capital requirements for a CCP which may be determined by a CCP and its supervisor.

54.29

K_{CCP} is calculated using the following formula, where:

1. RW is a risk weight of 20%⁴
2. capital ratio is 8%
3. CM is the clearing member
4. EAD_i is the exposure amount of the CCP to clearing member i , relating to the valuation at the end of the regulatory reporting date before the margin called on the final margin call of that day is exchanged. The exposure includes both:
 1. the clearing member's own transactions and client transactions guaranteed by the clearing member; and
 2. all values of collateral held by the CCP (including the clearing member's prefunded default fund contribution) against the transactions in (a).

$$K_{CCP} = \sum_{CM_i} EAD_i \cdot RW \cdot \text{capital ratio}$$

5. The sum is over all clearing member accounts.

1 Footnote

- ⁴ *The 20% risk weight is a minimum requirement. As with other parts of the capital adequacy framework, the national supervisor of a bank may increase the risk weight. An increase in such risk weight would be appropriate if, for example, the clearing members in a CCP are not highly rated. Any such increase in risk weight is to be communicated by the affected banks to the person completing this calculation.*

54.30

Where clearing members provide client clearing services, and client transactions and collateral are held in separate (individual or omnibus) sub-accounts to the clearing member's proprietary business, each such client sub-account should enter the sum in [CRE54.29](#) above separately, ie the member EAD in the formula above is then the sum of the client sub-account EADs and any house sub-account EAD. This will ensure that client collateral cannot be used to offset the CCP's exposures to clearing members' proprietary activity in the calculation of K_{CCP} . If any of these sub-accounts contains both derivatives and SFTs, the EAD of that sub-account is the sum of the derivative EAD and the SFT EAD.

54.31

In the case that collateral is held against an account containing both SFTs and derivatives, the prefunded initial margin provided by the member or client must be allocated to the SFT and derivatives exposures in proportion to the respective product specific EADs, calculated according to:

1. [CRE22.68](#) to [CRE22.72](#) for SFTs; and
2. SA-CCR (see [CRE52](#)) for derivatives, without including the effects of collateral.

54.32

If the default fund contributions of the member (DF_i) are not split with regard to client and house sub-accounts, they must be allocated per sub-account according to the respective fraction the initial margin of that sub-account has in relation to the total initial margin posted by or for the account of the clearing member.

54.33

For derivatives, EAD_i is calculated as the bilateral trade exposure the CCP has against the clearing member using the SA-CCR. In applying the SA-CCR:

1. A MPOR of 10 business days must be used to calculate the CCP's potential future exposure to its clearing members on derivatives transactions (the 20 day floor on the MPOR for netting sets with more than 5000 trades does not apply).
2. All collateral held by a CCP to which that CCP has a legal claim in the event of the default of the member or client, including default fund contributions of that member (DF_i), is used to offset the CCP's exposure to that member or client, through inclusion in the PFE multiplier in accordance with [CRE52.21](#) to [CRE52.23](#).

54.34

For SFTs, EAD_i is equal to $\max(EBRM_i - IM_i - DF_i; 0)$, where:

1. $EBRM_i$ denotes the exposure value to clearing member i before risk mitigation under [CRE22.69](#) to [CRE22.73](#); where, for the purposes of this calculation, variation margin that has been exchanged (before the margin called on the final margin call of that day) enters into the mark-to-market value of the transactions.
2. IM_i is the initial margin collateral posted by the clearing member with the CCP.
3. DF_i is the prefunded default fund contribution by the clearing member that will be applied upon such clearing member's default, either along with or immediately following such member's initial margin, to reduce the CCP loss.

54.35

As regards the calculation in this first step (ie [CRE54.28](#) to [CRE54.34](#)):

1. Any haircuts to be applied for SFTs must be the standard supervisory haircuts set out in [CRE22.44](#).
2. The holding periods for SFT calculations in [CRE22.61](#) to [CRE22.64](#) apply.
3. The netting sets that are applicable to regulated clearing members are the same as those referred to in [CRE54.10](#) and [CRE54.11](#). For all other clearing members, they need to follow the netting rules as laid out by the CCP based upon notification of each of its clearing members. The national supervisor can demand more granular netting sets than laid out by the CCP.

Capital requirement for each clearing member

54.36

The second step in calculating the clearing member bank's capital requirement for its default fund contribution (K_{CMI}) is to apply the following formula,⁵ where:

1. K_{CMi} is the capital requirement on the default fund contribution of clearing member bank i
2. DF_{CM}^{pref} is the total prefunded default fund contributions from clearing members
3. DF_{CCP} is the CCP's prefunded own resources (eg contributed capital, retained earnings, etc), which are contributed to the default waterfall, where these are junior or pari passu to prefunded member contributions
4. DF_{ipref} is the prefunded default fund contributions provided by clearing member bank i

$$K_{CMi} = \max \left(K_{CCP} \cdot \left(\frac{DF_i^{pref}}{DF_{CCP} + DF_{CM}^{pref}} \right); 8\% * 2\% * DF_i^{pref} \right)$$

1 Footnote, 1 FAQ

5 The formula puts a floor on the default fund exposure risk weight of 2%.

FAQ1 Is collateral posted as default fund contributions to a qualifying CCP subject to standardised supervisory haircuts in the computation of capital requirements for each clearing member (K_{CMi})?
 No. Exposures for collateral posted as default fund contributions to a qualifying CCP are not subject to haircuts in the computation of capital requirements for each clearing member (K_{CMi}) per the formula in [CRE54.36](#). However, haircuts apply for collateral used in the computation of EAD in the formula for K_{CCP} in [CRE54.29](#).

54.37

The CCP, bank, supervisor or other body with access to the required data, must make a calculation of K_{CCP} , DF_{CM}^{pref} , and DF_{CCP} in such a way to permit the supervisor of the CCP to oversee those calculations, and it must share sufficient information of the calculation results to permit each clearing member to calculate their capital requirement for the default fund and for the bank supervisor of such clearing member to review and confirm such calculations.

54.38

K_{CCP} must be calculated on a quarterly basis at a minimum; although national supervisors may require more frequent calculations in case of material changes (such as the CCP clearing a new product). The CCP, bank, supervisor or other body that did the calculations must make available to the home supervisor of any bank clearing member sufficient aggregate information about the composition of the CCP's exposures to clearing members and information provided to the clearing member for the purposes of the calculation of K_{CCP} , DF_{CM}^{pref} , and DF_{CCP} . Such information must be provided no less frequently than the home bank supervisor would require for monitoring the risk of the clearing member that it supervises.

54.39

K_{CCP} and K_{CMi} must be recalculated at least quarterly, and should also be recalculated when there are material changes to the number or exposure of cleared transactions or material changes to the financial resources of the CCP.

Cap with regard to QCCPs

54.40

Where the sum of a bank's capital requirements for exposures to a QCCP due to its trade

exposure and default fund contribution is higher than the total capital requirement that would be applied to those same exposures if the CCP were for a non-qualifying CCP, as outlined in [CRE54.41](#) and [CRE54.42](#) below, the latter total capital requirement shall be applied.

Exposures to non-qualifying CCPs

54.41

Banks must apply the standardised approach for credit risk, according to the category of the counterparty, to their trade exposure to a non-qualifying CCP.

54.42

Banks must apply a risk weight of 1250% to their default fund contributions to a non-qualifying CCP. For the purposes of this paragraph, the default fund contributions of such banks will include both the funded and the unfunded contributions which are liable to be paid if the CCP so requires. Where there is a liability for unfunded contributions (ie unlimited binding commitments), the national supervisor should determine in its supervisory review process assessments the amount of unfunded commitments to which a 1250% risk weight applies.