Note for consultation: Blue highlights clarifications with respect to board requirements.

# Prudential Standard APS 180

# Capital Adequacy: Counterparty Credit Risk

## Objectives and key requirements of this Prudential Standard

This Prudential Standard requires an authorised deposit-taking institution to adopt risk management practices and hold sufficient regulatory capital for counterparty credit risk exposures arising from over-the-counter derivative transactions, exchange traded derivative transactions, securities financing transactions and long settlement transactions.

The key requirements of this Prudential Standard are that an authorised deposit-taking institution must:

- calculate counterparty credit risk exposure amounts according to the standardised approach for measuring counterparty credit risk exposures or, until phased-out, the current exposure method;
- apply risk-weights to counterparty credit risk exposure amounts for capital adequacy purposes;
- where applicable, calculate and hold a credit valuation adjustment risk capital charge;
- where applicable, calculate and hold a default fund capital charge for default fund contributions to a qualifying central counterparty; and
- adopt risk management practices for bilateral and centrally cleared counterparty credit risk exposures.

## Table of contents

## Authority

1. This Prudential Standard is made under section 11AF of the *Banking Act 1959* (the **Banking Act**).

## Application

2. This Prudential Standard applies to all **authorised deposit-taking institutions** (**ADIs**) with the exception of:

   (a) **foreign ADIs**; and

   (b) **purchased payment facility providers**.

3. A reference to an ADI in this Prudential Standard, unless otherwise indicated, is a reference to:

   (a) an ADI on a **Level 1** basis; and

   (b) a **group** of which an ADI is a member on a **Level 2** basis.

4. If an ADI to which this Prudential Standard applies is:

   (a) the holding company for a group of bodies corporate, the ADI must ensure that the requirements in this Prudential Standard are met on a Level 2 basis, where applicable; or

   (b) a subsidiary of an authorised non-operating holding company (**authorised NOHC**), the authorised NOHC must ensure that the requirements in this Prudential Standard are met on a Level 2 basis, where applicable.

## Interpretation

5. Terms that are defined in *Prudential Standard APS 001 Definitions* appear in bold the first time they are used in this Prudential Standard.

6. Where this Prudential Standard provides for APRA to exercise a power or discretion, this power or discretion will be exercised in writing.

## Implementation timetable

7. Until 31 December 2017, an ADI must apply Attachment F (formerly Attachment C of *Prudential Standard APS 112 Capital Adequacy: Standardised Approach to Credit Risk* (APS 112)) for the counterparty credit risk requirements and Attachment E for the current exposure method (CEM) to use to calculate its counterparty credit risk exposure amount.

8. From 1 January 2018, an ADI must apply Attachments A to C for the counterparty credit risk requirements and Attachment D for the standardised approach for measuring counterparty credit risk exposures (SA-CCR) to use to calculate its counterparty credit risk exposure amount.

9. APRA may, upon a request of an ADI, approve the ADI to use the CEM to calculate its counterparty credit risk exposure amount until 31 December 2018 and to commence using the SA-CCR from 1 January 2019. For the avoidance of doubt, an ADI granted approval under this paragraph must apply Attachments A to C in determining its counterparty credit risk requirements from 1 January 2018 but may use the CEM methodology (Attachment E) in place of the SA-CCR (Attachment D).

## Definitions

10. The following definitions are used in this Prudential Standard:

    (a) central counterparty (CCP) — is a clearing house that interposes itself between counterparties to contracts traded in one or more financial markets, becoming the buyer to every seller and the seller to every buyer. A CCP becomes counterparty to trades with market participants through novation, an open offer system, or another legally binding arrangement. For the purposes of the capital framework, a CCP is a **financial institution**;

    (b) clearing member — is a member of, or a direct participant in, a CCP that is entitled to enter into a transaction with the CCP;

    (c) client of a clearing member — is a party to a transaction with a CCP through either a clearing member acting as a financial intermediary, or a clearing member guaranteeing the performance of the client to the CCP;

    (d) close-out netting — is the process of combining all outstanding transactions and reducing them to a single net payment in the event of default by a counterparty to a netting agreement;

    (e) counterparty credit risk — is the risk that the counterparty to a transaction could default before the final settlement of the transaction's cash flows. An economic loss would occur if the transactions or portfolio of transactions with the counterparty has a positive economic value at the time of default;

    (f) default funds — are clearing members' funded or unfunded contributions towards, or underwriting of, a CCP's mutualised loss-sharing arrangements;

    (g) eligible bilateral netting agreement — has the meaning in paragraph 7 of Attachment J of APS 112;

    (h) exchange traded derivative — is a derivative that is transacted directly through an organised, licensed and regulated exchange;

    (i) hedging set — under the SA-CCR, a set of transactions under a single netting set within which partial or full offsetting may be recognised for the purposes of calculating the potential future exposure add-on;

    (j) independent collateral amount (ICA) — represents (i) collateral (other than variation margin) posted by a counterparty that an ADI may seize upon default of the counterparty, the amount of which does not change in

response to the value of the transactions it secures, and/or (ii) the Independent Amount parameter as defined in standard industry documentation. ICA does not change in response to the value of the transactions it secures, but may change in response to factors such as the value of the collateral or a change in the number of transactions in the netting set. For clarity, initial margin for both centrally cleared and non-centrally cleared derivative transactions is included as ICA within the SA-CCR framework outlined in Attachment D;

(k) initial margin — is collateral that is collected to cover the potential future exposure that could arise from future changes in the market value of a derivative transaction over the close-out period in the event of a counterparty default;

(l) long settlement transaction — is a transaction where a counterparty undertakes to receive or deliver a security, a commodity, or a foreign exchange amount against cash, other financial instruments, or commodities at a contractually specified settlement or delivery date that is more than the lesser of (i) the market standard for the particular instrument, and (ii) five business days after the date on which the parties enter into the transaction;

(m) margin period of risk (MPOR) — is an estimated time period from the last exchange of collateral covering a netting set of transactions with a defaulting counterparty until the counterparty is closed out and the resulting market risk is re-hedged. For the purposes of measuring counterparty credit risk exposures using SA-CCR, MPOR must satisfy the conditions of the minimum holding period specified in paragraphs 40 and 41 of Attachment H of APS 112. MPOR must be measured in years;

(n) net independent collateral amount (NICA) — is the amount of collateral that an ADI may use to offset its exposure on the default of the counterparty. NICA is equal to any ICA (segregated or unsegregated) received by the ADI less the unsegregated ICA posted by the ADI. NICA does not include any collateral an ADI has posted to a segregated, bankruptcy remote account that would be returned to the ADI upon the bankruptcy of the counterparty;

(o) netting — is the process under a netting agreement of combining all relevant outstanding transactions between two counterparties and reducing them to a single net sum for a party to either pay or receive;

(p) netting by novation — is a netting agreement between two counterparties under which any obligation between the parties to deliver a given currency (or equity, debt instrument or commodity) on a given date is automatically amalgamated with all other obligations under the netting agreement for the same currency (or other instrument or commodity) and value date. The result is to legally substitute a single net amount for the previous gross obligations;

(q) netting set — is a group of transactions with a single counterparty that are subject to an eligible bilateral netting agreement under this Prudential

Standard. If a transaction with a counterparty is not subject to an eligible bilateral netting agreement, it comprises its own netting set;

(r) offsetting transaction — is the transaction leg between the clearing member and the CCP when the clearing member acts on behalf of a client (e.g. when a clearing member clears or novates a client's trade);

(s) over-collateralisation — is when the haircut value of collateral held is greater than the net market value of the derivative contracts covered by the collateral. Conversely, under-collateralisation occurs when the haircut value of collateral held is less than the net market value of the derivative contracts;

(t) over-the-counter (OTC) derivative transaction — is a customised, privately negotiated, risk-shifting agreement, the value of which is derived from the value of an underlying asset;

(u) qualifying CCP (QCCP) — is an entity that is licensed to operate as a CCP (including a licence granted by way of confirming an exemption), and is permitted by the CCP's regulator/supervisor to operate as such with respect to the products offered. The entity must be based and prudentially supervised in a jurisdiction where the relevant regulator/overseer has established, and publicly indicated that it applies to the CCP on an ongoing basis, domestic rules and regulations that are consistent with the Committee on Payment and Settlement Systems and International Organization of Securities Commissions (CPSS-IOSCO) *Principles for Financial Market Infrastructures*. In order for a CCP to be a QCCP, it must also calculate or make available the necessary data to allow for the calculation of an ADI's default fund capital charge;

(v) reference entity — the entity or entities whose obligations are used to determine whether a credit event has occurred under the terms of a credit derivative contract;

(w) reference obligation — the obligation used to calculate the amount payable when a credit event occurs under the terms of a credit derivative contract. A reference obligation is relevant for obligations that are to be cash settled (on a par-less-recovery basis);[1]

(x) SA-CCR — the standardised approach for measuring counterparty credit risk exposures (SA-CCR) is the methodology as set out in Attachment D;

(y) securities financing transactions (SFTs) — are transactions such as repurchase agreements, reverse repurchase agreements, and securities lending and borrowing transactions where the value of the transactions depends on the market valuation of securities and the transactions are typically subject to margin agreements;

[1] A reference obligation will typically also be a deliverable obligation unless otherwise excluded.

(z) trade exposure — is an exposure a clearing member or a client of a clearing member has to a CCP reflecting a measure of the current mark-to-market value (replacement cost) and the potential future exposure arising from OTC derivative transactions, exchange traded derivative transactions, SFTs and long settlement transactions. Trade exposure is calculated on a bilateral basis, and must include the initial margin posted by an ADI, as well as any variation margin due to the ADI from the CCP that has not yet been received; and

(aa) variation margin — is collateral that is collected or paid to reflect the current mark-to-market exposure resulting from changes in the market value of a derivative.

## Key principles

11. An ADI must include all OTC derivative transactions and exchange traded derivative transactions (collectively 'derivative transactions'), long settlement transactions[2] and SFTs held in the banking and trading books in applying the counterparty credit risk requirements set out in this Prudential Standard.

12. From 1 January 2018, an ADI must apply the counterparty credit risk requirements:

    (a) for all bilateral transactions, as set out in Attachment A;

    (b) for all centrally cleared transactions, as set out in Attachment B; and

    (c) for any default fund contribution to a QCCP, as set out in Attachment C.

13. The counterparty credit risk requirements comprise:

    (a) until 31 December 2017:

        (i) the risk weighted credit exposures for counterparty credit risk, calculated as the sum of any applicable:

            (A) risk-weighted assets for counterparty credit default risk;

            (B) risk-weighted assets for trade exposure to a CCP; and

            (C) risk-weighted assets for default fund exposure to a CCP; and

        (ii) any applicable credit valuation adjustment (CVA) risk capital charge; and

    (b) from 1 January 2018:

        (i) the risk-weighted credit exposures for counterparty credit risk, calculated as the sum of any applicable:

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[2] For the purposes of this Prudential Standard, long settlement transactions must be treated as OTC derivatives transactions.

(A) risk-weighted credit exposures for counterparty credit default risk ('default risk RWE');

(B) risk-weighted credit exposures for counterparty credit default risk arising from trade exposure to a CCP ('trade exposure RWE'); and

(C) risk-weighted credit exposure arising from a default fund contribution to a non-qualifying CCP ('default fund RWE');

(ii) any applicable CVA risk capital charge; and

(iii) any applicable default fund capital charge for any default fund contribution to a QCCP.

14. For all centrally cleared transactions, an ADI must apply the risk management requirements in paragraphs 29 to 33 of Attachment B or paragraphs 17 to 19 and 21 to 22 in Attachment F, as relevant.

## Risk-weighting approach

15. For the purposes of determining the risk-weighted credit exposures for counterparty credit risk, this paragraph must be read in conjunction with APS 112 or, for an ADI that has approval from APRA to use an **internal ratings-based (IRB) approach to credit risk**, *Prudential Standard APS 113 Capital Adequacy: Internal Ratings-based Approach to Credit Risk* (APS 113). Risk-weights must be determined in the following manner:

(a) an ADI subject to the **standardised approach to credit risk** must determine the risk-weights for bilateral transactions in accordance with APS 112;

(b) an ADI subject to the IRB approach to credit risk must determine the risk-weights for bilateral transactions in accordance with APS 113;

(c) from 1 January 2018, an ADI must determine the risk-weights for trade exposures with a CCP under Attachment B of this Prudential Standard. Until 31 December 2017, an ADI must determine the risk-weights for trade exposures with a CCP under Attachment F of this Prudential Standard; and

(d) from 1 January 2018, an ADI must determine the risk-weights for default fund exposures with a non-qualifying CCP under Attachment B of this Prudential Standard. Until 31 December 2017, an ADI must determine the risk-weights for default fund exposures with a QCCP or non-qualifying CCP under Attachment F of this Prudential Standard.

16. APRA may determine a higher or lower risk-weight for a particular exposure of an ADI where APRA considers that the ADI has not risk-weighted the exposure appropriately.

## Historical rate rollovers

17. An ADI must not enter into market-related contracts at off-market prices other than historical rate rollovers on foreign exchange contracts. An ADI must have a policy framework in place agreed to by APRA that sets out its systems and controls for approving and monitoring these rollovers and adequately restricts the ADI's capacity to enter into such contracts. Transactions outside of the agreed framework must be discussed with APRA to determine their appropriate treatment.

## Adjustments and exclusions

18. APRA may, by notice, adjust or exclude a specific prudential requirement in this Prudential Standard in relation to one or more specified ADIs or authorised NOHCs.[3]

[3] Refer to subsection 11AF(2) of the Banking Act.

# Attachment A — Counterparty credit risk requirements for bilateral transactions

1. This Attachment is effective from 1 January 2018.

2. This Attachment applies to OTC derivative transactions, SFTs and long settlement transactions that are not centrally cleared. For the purposes of this Attachment, a long settlement transaction must be treated as an OTC derivative transaction.

3. This Attachment also applies to centrally cleared transactions, including exchange traded derivative transactions, which are required to be treated as bilateral transactions under Attachment B.

4. For bilateral OTC derivative transactions, an ADI must calculate each of the following counterparty credit risk requirements:

   (a) default risk RWE, which reflects the potential loss arising from a default of a counterparty (refer to paragraphs 7 to 13 of this Attachment); and

   (b) a CVA risk capital charge, which accounts for mark-to-market losses arising from a deterioration in a counterparty's credit quality (refer to paragraphs 14 to 21 of this Attachment).

5. For bilateral SFTs, an ADI must calculate default risk RWE. To determine default risk RWE for SFTs, an ADI must calculate a counterparty credit risk exposure amount according to APS 112[4] and apply the applicable risk-weight according to the requirements of APS 112 or, for an ADI that has approval from APRA to use an IRB approach to credit risk, according to the requirements of APS 113.

6. Bilateral SFTs are not subject to a CVA risk capital charge, unless APRA has determined that an ADI's CVA loss exposure arising from SFTs is material and notified the ADI that it must calculate a CVA risk capital charge according to paragraphs 14 to 21 of this Attachment.

## Default risk RWE for OTC derivative transactions

7. To determine default risk RWE for OTC derivative transactions, an ADI must calculate a counterparty credit risk exposure amount and apply the relevant risk-weight in accordance with paragraph 13 of this Attachment.

8. The counterparty credit risk exposure amount is the exposure at default (EAD) calculated according to the SA-CCR. For an ADI with approval under paragraph 9 of this Prudential Standard, the counterparty credit risk exposure amount is the credit equivalent amount (CEA) calculated using the CEM.

[4] The total exposure amount for bilateral SFTs must be calculated by adding together the exposure amount for each SFT not covered by an eligible netting agreement (refer to Attachment H of APS 112) and the exposure amount for all SFTs covered by an eligible netting agreement (refer to Attachment J of APS 112).

*Counterparty credit risk exposure amount under the SA-CCR*

9. Under the SA-CCR, counterparty credit risk exposure amount is the EAD for all OTC derivative transactions with a given counterparty, calculated according to the SA-CCR methodology in Attachment D of this Prudential Standard. Eligible netting and collateralisation are incorporated in the SA-CCR methodology.

*Counterparty credit risk exposure amount under CEM*

10. Under the CEM, counterparty credit risk exposure amount is the credit equivalent amount (CEA) for all OTC derivative transactions with a given counterparty, calculated by adding together:

    (a) the transaction-level CEA calculated under the CEM methodology in Attachment E of this Prudential Standard for each transaction not covered by an eligible bilateral netting agreement; and

    (b) the CEA calculated under the CEM methodology in Attachment E of this Prudential Standard for transactions covered by an eligible bilateral netting agreement that meets the criteria set out in Attachment J of APS 112;

    and adjusting the sum for collateral that meets the eligibility criteria for CEM set out in Attachment H of APS 112.

*Adjustment for incurred CVA under SA-CCR and CEM*

11. For all OTC derivative transactions,[5] the counterparty-level EAD or CEA must then be adjusted for incurred CVA by subtracting the CVA amount for the counterparty that has already been recognised by the ADI as an incurred write-down (i.e. a CVA loss). The incurred CVA loss must be calculated according to the ADI's own valuation methodology and must not include any debit value adjustment (DVA).

*Credit risk mitigation*

12. Forms of credit risk mitigation including guarantees and credit derivatives may be used to reduce the default risk RWE. The eligibility and other requirements for application are as set out in APS 112.

*Risk-weighting*

13. The applicable risk-weight for a counterparty credit risk exposure amount is determined according to the requirements of APS 112 or, for an ADI that has approval from APRA to use an IRB approach to credit risk, according to the requirements of APS 113.

## CVA risk capital charge

14. An ADI must calculate its CVA risk capital charge for the risk of mark-to-market losses on the expected counterparty credit risk (CVA loss) for all bilateral OTC

[5] No adjustment to CVA should be included for SFTs.

derivative transactions and centrally cleared transactions required to be treated as bilateral. The CVA risk capital charge is calculated using the CVA approach outlined in paragraphs 17 to 21 of this Attachment, unless the conditions under paragraph 15 of this Attachment are satisfied.

15. An ADI, other than an ADI with either funded or unfunded default fund contributions to a CCP, may apply to APRA for approval to determine its CVA risk capital requirement according to a simplified approach, instead of the approach set out in paragraphs 17 to 21 of this Attachment. APRA may approve an application made under this paragraph.

16. Where an ADI has obtained approval from APRA under paragraph 15, the ADI must set its CVA risk capital charge equal to the amount of capital required for its risk-weighted credit exposure for counterparty credit default risk.

17. An ADI must calculate its CVA risk capital charge, $K_{CVA}$, according to one of the three following formulae:

    (a) an ADI that has OTC derivative exposure to only one counterparty must calculate its CVA risk capital charge as:

$$K_{CVA} = 2.33 \times w \times M \times D \times Exposure^{total}$$

    where:

    $w$ = the weight applicable to the counterparty determined according to paragraph 18 of this Attachment;

    $M$ = the weighted average maturity in years (weighted by notional amount) of all OTC derivative transactions with the counterparty, determined according to paragraphs 33 to 41 of Attachment B of APS 113, except that $M$ is not capped at five years;

    $D = \frac{1-e^{-0.05M}}{0.05\text{M}}$; and[6]

    $Exposure^{total}$ = the EAD under SA-CCR[7] for the counterparty, without any adjustment for incurred CVA;

    If there is more than one netting set for the counterparty, an ADI must determine $M$, $D$ and $Exposure^{total}$ separately for each netting set, and calculate the sum of $M \times D \times Exposure^{total}$ over all netting sets. The calculation of $M$ applies at the netting set level;

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6 D is the discount factor based on a continuously compounding interest rate of five per cent per annum and term to maturity of M years, and e (≈2.71828) is the base of the natural logarithm.

7 For an ADI with approval under paragraph 9 of this Prudential Standard, this parameter is equal to the counterparty-level CEA under CEM without any adjustment for incurred CVA.

(b) an ADI that has OTC derivative exposures to more than one counterparty, but does not allow for CVA hedges in accordance with paragraphs 19 to 21 of this Attachment, must calculate its CVA risk capital charge as:

$$K_{CVA} = 2.33\sqrt{0.25\left(\sum_i w_i M_i D_i Exposure_i^{total}\right)^2 + 0.75\sum_i \left(w_i M_i D_i Exposure_i^{total}\right)^2}$$

where the summations (subscript $i$) are by counterparty; and

(c) an ADI that has OTC derivative exposures to more than one counterparty, and has in place eligible CVA hedges in accordance with paragraphs 19 to 21 of this Attachment, must calculate its CVA risk capital charge as:

$$K_{CVA} = 2.33\sqrt{\begin{pmatrix}\sum_i 0.5 w_i\left(M_i D_i Exposure_i^{total} - M_i^{hedge} D_i^{hedge} B_i\right) \\ -\sum_{ind} w_{ind} M_{ind} D_{ind} B_{ind}\end{pmatrix}^2 + 0.75\sum_i {w_i}^2\left(M_i D_i Exposure_i^{total} - M_i^{hedge} D_i^{hedge} B_i\right)^2}$$

where:

$M_i^{hedge}$= the maturity in years of the purchased single name credit default swap (CDS) hedge referencing counterparty $i$ and used to hedge CVA risk;

$D_i^{hedge} = \frac{1-e^{-0.05 M_i^{hedge}}}{0.05 M_i^{hedge}}$;

$B_i$ = the notional amount of the purchased single-name CDS hedge referencing counterparty $i$ and used to hedge CVA risk;

$w_{ind}$ = the weight applicable to the 'ind' CDS index determined according to paragraph 18 of this Attachment;

$M_{ind}$ = the maturity in years of 'ind' CDS index purchased protection;

$D_{ind} = \frac{1-e^{-0.05 \mathrm{M_{ind}}}}{0.05 \mathrm{M_{ind}}}$; and

$B_{ind}$ = the notional amount of 'ind' CDS index purchased protection used to hedge CVA risk.

An ADI that has more than one purchased single-name CDS hedge referencing counterparty $i$ used to hedge CVA risk, must replace $M_i^{hedge} D_i^{hedge} B_i$ in the formula above by the sum over all such hedges:

$$M_{ind}D_{ind}B_{ind} = \sum_{j} M_{ind,j}D_{ind,j}B_{ind,j}$$

where each hedge is denoted by the subscript $j = 1,2,3, ...$

An ADI that has purchased more than one CDS index protection to hedge CVA risk must replace $M_{ind}D_{ind}B_{ind}$ in the formula above by the sum over all such hedges:

$$M_{ind}D_{ind}B_{ind} = \sum_{j} M_{ind,j}D_{ind,j}B_{ind,j}$$

where each hedge is denoted by the subscript $j = 1,2,3, ...$

18. For the purposes of calculating the CVA risk capital charge, an ADI must determine the weight for a counterparty or credit index by its **credit rating grade** according to Table 1 below.

Table 1: CVA risk capital formula weights

| **Long term credit rating grade** | **Weight (%)** |
|---|---|
| 1 | 0.7 |
| 2 | 0.8 |
| 3 | 1.0 |
| 4 or unrated | 2.0 |
| 5 | 3.0 |
| 6 | 10.0 |

19. An ADI may include eligible CVA hedges in the calculation of the CVA risk capital charge as set out in paragraph 17(c) of this Attachment subject to the following conditions:

(a) to qualify as an eligible CVA hedge, the hedge must be transacted with an external counterparty, used for the purposes of mitigating CVA risk, and managed as such;

(b) the only CDS hedges that may qualify as eligible CVA hedges are single-name CDS (including sovereign CDS), single-name contingent CDS, other equivalent hedging instruments referencing the counterparty directly, and index CDS. A tranched or nth-to-default CDS may not be treated as an eligible CVA hedge; and

(c) an instrument for which the associated payment depends on cross-default (such as a related entity hedged with a reference entity CDS and CDS triggers) may not be treated as an eligible CVA hedge. If restructuring is not included in the CDS contract then the proportion of that CDS hedge that may be treated as an eligible CVA hedge is as in accordance with the rules regarding specific risk offsetting set out in Attachment D of *Prudential Standard APS 116 Capital Adequacy: Market Risk* (APS 116).

20. Other types of counterparty risk hedges must not be reflected within the calculation of the CVA risk capital charge, and these other hedges must be treated as any other instrument in the ADI's inventory for **Regulatory Capital** purposes. Eligible CVA hedges that are included in the CVA risk capital charge must not be included in the ADI's market risk capital charge calculation under APS 116.

21. If a counterparty is also a constituent of an index on which a CDS is used for hedging counterparty credit risk, the notional amount attributable to that single name (as per its reference entity weight) may, with APRA's approval, be subtracted from the index CDS notional amount and treated as a single name eligible CVA hedge of the individual counterparty with maturity using the maturity of the index.

# Attachment B — Counterparty credit risk requirements for centrally cleared transactions

1. This Attachment is effective from 1 January 2018.

2. This Attachment applies to all transactions that are centrally cleared, including OTC derivative transactions, exchange traded derivative transactions, SFTs and long settlement transactions. For the purposes of this Attachment, a long settlement transaction must be treated as an OTC derivative transaction. Transactions that result in exposures arising from the settlement of cash transactions only (e.g. equities, fixed income, spot foreign exchange (FX) and spot commodities) are not subject to this treatment. [8]

3. For transactions cleared through a QCCP, an ADI must apply the counterparty credit risk requirements for exposures to a QCCP and the ADI's clients in accordance with paragraphs 9 to 27 of this Attachment, and the risk management requirements in accordance with paragraphs 29 to 33 of this Attachment.

4. Where a CCP does not meet the definition of a QCCP in paragraph 10(u) of this Prudential Standard, or where a CCP does not meet all of the requirements in paragraph 7 of Attachment C of this Prudential Standard, the CCP is considered to be a non-qualifying CCP. An ADI must apply the counterparty credit risk requirements for exposures to a non-qualifying CCP in accordance with paragraph 28 of this Attachment and the risk management requirements in accordance with paragraphs 29 to 33 of this Attachment.

5. Within three months of a CCP ceasing to qualify as a QCCP, unless required otherwise by APRA, the transactions with a former QCCP may, for the purposes of this Attachment, continue to be treated as though they are with a QCCP. After that time, the ADI's exposures with such a CCP must be treated according to paragraph 28 of this Attachment.

6. For the purposes of calculating an ADI's exposure to a CCP:

   (a) initial margin is the funded collateral posted to a CCP to mitigate the potential future exposure of the CCP to the clearing member, including collateral deposited by a clearing member or a client that may be in excess of the minimum required amount provided there are appropriate arrangements in place to prevent the withdrawal of such excess collateral by the clearing member of the client. Initial margin does not include an ADI's contribution to a CCP for a mutualised loss-sharing arrangement (i.e. a default fund contribution); and

   (b) variation margin is the funded collateral posted on a daily or intraday basis to a CCP to mitigate movements in ongoing mark-to-market exposure.

[8] For contributions to prepaid default funds covering settlement risk-only products, the applicable risk weight is zero per cent.

7. For an exchange traded derivative where the transaction between the clearing member and client is conducted under a bilateral agreement, an ADI that is either a clearing member (clearing member ADI) or a client (client ADI) must treat the transaction as an OTC derivative transaction for the purposes of this Attachment.

8. Where the amount of capital required for an ADI's exposure to a QCCP due to its trade exposure and default fund contribution is higher than would be applied if the CCP were a non-qualifying CCP, the required capital is capped at the amount for a non-qualifying CCP.

## Exposures arising from transactions cleared through a QCCP

9. For transactions cleared through a QCCP, clearing member ADI must calculate each of the following counterparty credit risk requirements:

   (a) trade exposure RWE on the clearing member ADI's trade exposure[9] to the QCCP according to paragraphs 11 to 18 of this Attachment; and

   (b) a default fund capital charge on the default fund contribution to the QCCP calculated according to Attachment C; and

   (c) where a clearing member ADI has provided a guarantee of a client transaction to the QCCP or acts as a financial intermediary between a client and the QCCP (i.e. the clearing member completes an offsetting transaction with the QCCP), default risk RWE and a CVA risk capital charge on the counterparty credit risk exposure to its client, calculated according to paragraph 19 of this Attachment; and

   (d) where a clearing member ADI has provided a guarantee to a client, by undertaking any obligation to reimburse a client for any losses suffered due to changes in transaction value in the event that a QCCP defaults, trade exposure RWE and a default fund capital charge on the guaranteed transaction.

10. For an ADI acting as a client of a clearing member to a QCCP, the client ADI must apply the counterparty credit risk requirements specified in paragraphs 20 to 23 of this Attachment.

## Trade exposure RWE for a clearing member ADI's exposure to a QCCP

11. To calculate trade exposure RWE, a clearing member ADI must calculate its trade exposure to the QCCP and apply the relevant risk-weights according to paragraphs 12 to 18 of this Attachment.

12. For the clearing member ADI-to-QCCP leg of a transaction cleared through a QCCP, a clearing member ADI must calculate its trade exposure to the QCCP using the SA-CCR methodology (refer to Attachment D) for all derivative

[9] Trade exposure includes any posted collateral but excludes any default fund contributions. Refer to paragraph 10(z) for the complete definition of trade exposure.

transactions and in accordance with the requirements of paragraph 5 of Attachment A for all SFTs, and:

(a) for all OTC derivative transactions, apply a margin period of risk (MPOR) of at least 10 business days;

(b) for all other transactions, apply a MPOR or holding period that is at least equal to that applicable if the transaction were a bilateral transaction;

(c) for a netting set where the number of trades exceeds 5,000 at any point during a quarter, the 20-business day floor for MPOR specified in paragraph 41 of Attachment H of APS 112 does not apply if the netting set does not contain any illiquid collateral, exotic trades or disputed trades; and

(d) where a QCCP retains variation margin against certain transactions (e.g. where the QCCP collects and holds variation margin against positions in exchange-traded or OTC forwards) and that variation margin is not protected against the insolvency of the QCCP, set the transaction's maturity factor (*MF*) under the SA-CCR to that of the unmargined case under paragraph 44 of Attachment D of this Prudential Standard.

13. A clearing member ADI may calculate its trade exposure to a QCCP applying appropriate netting when the below two conditions are satisfied:

(a) settlement is legally enforceable on a net basis in an event of default regardless of whether the counterparty is insolvent or bankrupt; and

(b) all netting agreements meet the requirements for the bilateral case set out in Attachment J of APS 112.[10]

14. Where a clearing member ADI cannot demonstrate that a netting agreement meets the requirements in paragraph 13 of this Attachment, it must treat each single transaction with the QCCP as a netting set of its own for the calculation of trade exposure.

15. If a clearing member ADI first collects collateral from a client for a client-cleared trade and then this collateral is passed on to the QCCP, the ADI may recognise this collateral for both the QCCP-to-clearing member leg and the clearing member-to-client leg of the client-cleared transaction.

16. Where a clearing member ADI is transacting with a QCCP for its own purposes, the clearing member ADI must apply a two per cent risk-weight to its trade exposure to the QCCP, excluding exposure resulting from posted collateral.

17. Where a clearing member ADI offers clearing services to clients, the clearing member ADI must apply a two per cent risk-weight to its trade exposure to the QCCP, excluding exposure resulting from posted collateral, arising from any

[10] To the extent that the rules referenced in Attachment J of APS 112 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.

obligations to reimburse a client for any losses suffered due to changes in transaction value in the event that the QCCP defaults.

18. The risk weight applied to any collateral posted by a clearing member ADI to the QCCP that is included in the definition of trade exposure in paragraph 10(z) of this Prudential Standard must be determined in accordance with paragraphs 24 to 27 of this Attachment.

## Clearing member ADI's exposure to clients

19. For the clearing member ADI-to-client leg of a transaction with a QCCP, a clearing member ADI must calculate its counterparty credit risk requirements on its exposures to its clients following the requirements for bilateral transactions set out in Attachment A of this Prudential Standard (comprising both default risk RWE and a CVA risk capital charge). However, to recognise the shorter close-out period for cleared client derivative transactions, the clearing member ADI may apply a minimum MPOR of five business days in calculating the clearing member ADI's exposure amounts to its clients under the SA-CCR (refer to Attachment D). The reduced EAD may also be used in the calculation of the CVA risk capital charge.

## Client ADI's exposure to a QCCP

20. An ADI is considered a client ADI where:

    (a) the ADI clears through a QCCP indirectly as a client of a clearing member acting as a financial intermediary (i.e. the clearing member completes an offsetting transaction with the QCCP); or

    (b) the ADI enters into a transaction with a QCCP, with a clearing member guaranteeing the client ADI's performance,

    and must calculate a trade exposure to the clearing member ADI or QCCP, respectively, using the SA-CCR methodology[11] (refer to Attachment D) and risk-weight the trade exposure according to the requirements in paragraphs 21 to 23 of this Attachment.

21. A client ADI must treat its trade exposure, excluding exposure resulting from posted collateral, as if it were a clearing member ADI's trade exposure to the QCCP, and apply the requirements set out in paragraphs 11 to 15 of this Attachment when the following three conditions are met:

    (a) the offsetting transactions are identified by the QCCP as client transactions and the collateral to support the offsetting transactions is held in a manner that prevents any losses to the client ADI due to either the default or insolvency of the clearing member, or the default or insolvency of the clearing member's other clients. Additionally, the client ADI must have conducted a sufficient legal review, and undertake further review as necessary to ensure continuing enforceability of the arrangements. The

[11] An ADI with approval under paragraph 9 of this Prudential Standard may use the CEM (refer Attachment E) to calculate its trade exposure.

client ADI must have a well-founded basis to conclude that, in the event of legal challenge, the relevant courts and administrative authorities would find that the arrangements would be legal, valid, binding and enforceable under the relevant laws of the relevant jurisdiction(s);

(b) the collateral supporting the offsetting transactions is held in a manner that prevents any losses to the client ADI due to the joint default or insolvency of the clearing member and any of its other clients. Additionally, the client ADI must have conducted a sufficient legal review, and undertake further review as necessary to ensure continuing enforceability of the arrangements. The client ADI must have a well-founded basis to conclude that, in the event of legal challenge, the relevant courts and administrative authorities would find that the arrangements would be legal, valid, binding and enforceable under the relevant laws of the relevant jurisdiction(s); and

(c) the 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 QCCP, or by the QCCP, if the clearing member defaults or becomes insolvent. In such circumstances, the client positions and collateral with the QCCP will be transferred at market value unless the client ADI requests to close out the position at market value.

22. Where only conditions (a) and (c) of paragraph 21 are satisfied, the client ADI must apply a risk-weight of four per cent to its calculated trade exposure to the QCCP, excluding exposure resulting from posted collateral. The applicable risk-weight on collateral posted by the client ADI that is included in the definition of trade exposure[12] must be determined according to paragraphs 24 to 27 of this Attachment.

23. In any other case, the client ADI must treat the exposure as bilateral for the purposes of all counterparty credit risk requirements and apply the treatment set out in Attachment A of this Prudential Standard (comprising both default risk RWE and a CVA risk capital charge).

## Exposures arising from collateral posted to a QCCP

24. For the purposes of this Attachment, collateral posted by an ADI to the QCCP includes but is not limited to: initial margin, any variation margin due to the ADI from the QCCP but not yet received, cash, securities, other pledged assets and any excess initial or variation margin. Posted collateral does not include any default fund contribution.

25. An ADI that has posted collateral to a QCCP must risk-weight those assets in accordance with the relevant banking book or trading book treatment that would otherwise apply regardless of the fact that such assets have been posted as collateral.

12 Trade exposure is defined in paragraph 10(z) of this Prudential Standard.

26. For collateral posted by a clearing member ADI to a QCCP, the ADI:

    (a) may apply a zero risk-weight to all posted collateral that is held by a custodian[13] where that collateral is bankruptcy remote from the QCCP; and

    (b) must apply a two per cent risk-weight to all posted collateral held by the QCCP where that collateral is not held in a bankruptcy-remote manner.

27. For collateral posted by a client ADI to a QCCP, the ADI:

    (a) may apply a zero risk-weight to all posted collateral that is held by a custodian where the collateral is bankruptcy remote from the QCCP, the clearing member, and the clearing member's other clients;

    (b) must apply a two per cent risk-weight to all posted collateral held by the QCCP if the collateral is not bankruptcy remote from the QCCP, and all conditions (a), (b) and (c) in paragraph 21 of this Attachment are satisfied; and

    (c) must apply a four per cent risk-weight to all posted collateral held by the QCCP if the collateral is not bankruptcy remote from the QCCP and only conditions (a) and (c) in paragraph 21 of this Attachment are satisfied.

## Exposures arising from transactions cleared through a non-qualifying CCP

28. For all transactions with a non-qualifying CCP, an ADI must calculate the following counterparty credit risk requirements:

    (a) trade exposure RWE in respect of the ADI's exposure to the non-qualifying CCP and any exposure to the ADI's clients, calculated in accordance with Attachment A of this Prudential Standard, and risk-weighted in accordance with Attachment A of APS 112;[14]

    (b) a CVA risk capital charge in respect of the non-qualifying CCP and any clients, calculated in accordance with Attachment A of this Prudential Standard; and

    (c) where the ADI is a clearing member of the non-qualifying CCP, default fund RWE, given by:

$$RWE = 1250\% \times DF$$

[13] A 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.

[14] An ADI must apply the standardised risk-weighting methodology of APS 112 regardless of whether the ADI has approval to use an internal ratings-based approach to credit risk under APS 113.

where:

$RWE =$ the clearing member ADI's risk-weighted exposure (RWE) in respect of its default fund exposure to the non-qualifying CCP; and

$DF =$ the clearing member ADI's pre-funded contribution to the default fund of the non-qualifying CCP, plus a proportion, to be specified by APRA, of the ADI's unfunded contributions that are liable to be paid should the CCP so require.

## Risk management requirements for centrally cleared exposures

29. An ADI must establish a process for monitoring by, and regular reporting to, senior management 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. An ADI must also establish a process for regular reporting of material exposures to CCPs to the appropriate committee of the Board.

30. An ADI must ensure that it maintains adequate capital for its exposures to CCPs, regardless of whether a CCP is classified as a QCCP. In particular, an ADI must consider whether it might need to hold capital in excess of the minimum capital requirements if, for example, (i) its dealings with a CCP give rise to higher risk exposure or (ii) where it is unclear whether a CCP meets the definition of a QCCP in paragraph 10(u) of this Prudential Standard based on the ADI's dealings with the CCP.

31. For all exposures to CCPs, a clearing member ADI must 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. The assessment must include potential future or contingent exposure resulting from future drawings on default fund commitments, and/or from any secondary commitments to take over or replace offsetting transactions from clients of another clearing member in the event that the clearing member defaults or becomes insolvent.

32. Where a CCP is in a jurisdiction that does not have a CCP regulator applying the CPSS-IOSCO *Principles for Financial Market Infrastructures* to the CCP, that CCP must be treated as a non-qualifying CCP unless APRA makes a determination that it may be treated as a QCCP.

33. APRA may require an ADI to hold additional capital against its exposures to a QCCP if an external assessment has found material shortcomings in the regulation of the QCCP and the CCP regulator has not since publicly addressed the issues identified.

# Attachment C — Capital charge for default fund exposure to a QCCP

1. This Attachment is effective from 1 January 2018.

2. The default fund capital charge applies only to an ADI that is a clearing member to a QCCP. A client ADI is not required to calculate this capital charge.

3. Where a default fund is shared between products or types of business with settlement risk only and products or types of business that give rise to counterparty credit risk (i.e. OTC derivative transactions, exchange traded derivative transactions, SFTs or long settlement transactions), all of the default fund contributions will receive the risk-weight determined according to the methodology outlined in paragraphs 4 to 16 of this Attachment, without apportioning to different classes or types of business or products under paragraph 4.

4. Where the default fund is segregated by product types and only accessible for specific product types, the capital charge for those default fund exposures must be calculated for each specific product giving rise to counterparty credit risk.

5. When a QCCP's prefunded own resources are shared among product types, an ADI must ensure that the QCCP allocates those funds to each of the calculations, in proportion to the respective product-specific EADs, when calculating its own default fund exposure to that QCCP.

6. The default fund capital charge for a clearing member ADI's default fund exposure is obtained by following a two-step process:

   (a) Step 1 - the calculation of a risk-sensitive measure of the exposure a QCCP has to all its clearing members and their clients (refer to paragraphs 8 to 15); and

   (b) Step 2 - the calculation of the default fund capital charge for the clearing member ADI (refer to paragraph 16).

7. A clearing member ADI may rely on the QCCP to undertake the calculations in paragraphs 8 to 15 and provide to the clearing member ADI the necessary data to calculate its default fund capital charge, provided any calculations undertaken by the QCCP meet the following conditions:

   (a) the QCCP's calculations are undertaken in a transparent manner with sufficient shared information so as to permit:

      (i) a supervisor of the QCCP to oversee those calculations;

      (ii) the clearing member ADI to calculate the default fund capital charge on its own default fund contributions; and

      (iii) APRA to review and confirm such calculations upon request;

(b) all calculations, including both steps and the inputs to both steps, must be repeated upon any material change (such as the QCCP clearing a new product, or when there are material changes to the number of or the exposure of cleared transactions or material changes to the financial resources of the QCCP), and, in any case, at least quarterly. APRA may request a refreshed or more frequent recalculation at any time; and

(c) sufficient aggregate information about the composition of the QCCP's exposures to its clearing members, as well as any information[15] provided to the ADI for calculation purposes, is made available to APRA at least quarterly, or upon request.

Where any of these conditions is not met, an ADI must treat its default fund exposure as if it were to a non-qualifying CCP and calculate default fund RWE in accordance with Attachment B of this Prudential Standard.

8. Step 1 is to compute the hypothetical capital requirement of the QCCP, $K_{CCP}$,[16] due to its counterparty credit risk exposures to all of its clearing members and their clients. $K_{QCCP}$ must be calculated according to:

$$K_{QCCP} = RW \times 8\% \times \sum_{m} EAD_m$$

where:

$RW =$ 20 per cent, except where APRA has determined that a higher risk weight must be used; and

$EAD_m =$ the exposure amount of the QCCP to the $m^{th}$ clearing member, which must be calculated according to paragraphs 9 to 15 of this Attachment.

9. The exposure or the EAD amount must be calculated separately for derivative transactions and SFTs. The specific treatment depends on whether the clearing member provides client services and whether the client transactions and collaterals are held in separate sub-accounts to the clearing member's house sub-account.

10. When a clearing member *m* provides client services to multiple clients (a client is denoted by $c$), and the client transactions and collaterals are held in separate (individual or omnibus) sub-accounts to clearing member $m$'s house sub-account for proprietary business, the exposure for clearing member $m$, $EAD_m$, must be calculated separately for each client sub-account and the house sub-account, according to:

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15 This includes the calculation for Step 1 and the CCP-level inputs used in Step 2.

16 $K_{CCP}$ is calculated on a consistent basis for the sole purpose of determining the capital requirements of a clearing member's default fund contribution. It does not represent the actual capital requirements of a QCCP.

$$EAD_m = EAD_m^{\text{derivatives}} + EAD_m^{\text{SFTs}} + \sum_c \left(EAD_{m,c}^{\text{derivatives}} + EAD_{m,c}^{\text{SFTs}}\right)$$

where:

$EAD_m^{\text{TYPE}}$ = the EAD of the QCCP to clearing member $m$'s house sub-account for a given type of transaction; and

$EAD_{m,c}^{\text{TYPE}}$ = the EAD of the QCCP to client $c$'s sub-account for a given type of transaction.

11. When a clearing member $m$ provides client services and those client transactions and collateral are not held in separate sub-accounts to the clearing member's house sub-account, then the exposure of m and all of its clients must be calculated together, according to:

$$EAD_m = EAD_{m,\sum c}^{\text{derivatives}} + EAD_{m,\sum c}^{\text{SFT}}$$

where:

$EAD_{m,\sum c}^{\text{TYPE}}$ = the EAD of the QCCP to both clearing member $m$'s house sub-account, and all of its clients' sub-accounts for a given type of transaction.

12. Where a clearing member $m$ does not provide any client services, $EAD_m$ must be calculated simply as:

$$EAD_m = EAD_m^{\text{derivatives}} + EAD_m^{\text{SFT}}$$

where:

$EAD_m^{\text{TYPE}}$ = the EAD of the QCCP to clearing member $m$'s house sub-account for a given type of transaction.

13. In calculating each sub account-level EAD amount the following three conditions must be satisfied:

    (a) the netting sets that are applicable to regulated clearing members (and their clients) of the QCCP must be the same as those referred to in paragraphs 13 and 14 of Attachment B. All other clearing members (and their clients) of the QCCP must otherwise follow the netting rules as laid out by the QCCP based upon notification of each of its clearing members. Where APRA is not satisfied with these netting rules, APRA may request an ADI to ensure that more granular netting sets than as laid out by the QCCP are used in the calculation;

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

(c) within each sub-account (of both the client and the house), the prefunded initial margin provided by the clearing member or client, as well as the default fund contribution provided by the clearing member or apportioned to the client, must be allocated to the derivative and SFT exposures in proportion to the respective product specific EADs, calculated in accordance with the SA-CCR methodology without including the effects of collateral for derivative transactions; or as the exposure value under paragraph 26 of Attachment J of APS 112 for SFTs.

14. For derivative transactions, each sub account-level EAD must be calculated as the bilateral trade exposure the QCCP has against the clearing member ADI or client ADI using the SA-CCR methodology and is subject to the following two requirements:

(a) all collateral[17] held by the QCCP to which it has a legal claim in the event of the default of the member or client, must be used to offset the QCCP's EAD to that member or client through inclusion in the potential future exposure (PFE) multiplier in accordance with paragraph 13 of Attachment D; and

(b) a MPOR of 10 business days must be used for the calculation of the EAD.[18]

15. For SFTs, each sub account-level EAD amount must be calculated according to the following formula:

$$EAD_i^{\text{SFT}} = \max\{EBRM_i - IM_i - DF_i; 0\}$$

where:

$EAD_i^{\text{SFT}}$ = the EAD amount of the QCCP to the SFT exposure originated from party[19] $i$;

$EBRM_i$ = the exposure value of the SFTs that a QCCP has against party $i$ before risk mitigation under paragraph 38 of Attachment J of APS 112. The mark-to-market value of the SFTs must incorporate the variation margin that has been exchanged before the margin called on the final margin call of the calculation date;

$IM_i$ = initial margin allocated to SFT exposures posted by party $i$ with the QCCP; and

$DF_i$ = the prefunded default fund contribution allocated to the SFT exposure by party $i$, that will be applied upon the default of $i$ if $i$ is a clearing member, or of

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17 This collateral includes initial margin, default fund contribution, variation margin, over-collateralisation, and the collateral posted by clients as specified in paragraph 15 of Attachment B of this Prudential Standard.

18 The 20-business day floor outlined in paragraph 41(a) of Attachment H of APS 112 does not apply to this case.

19 A party can either be a clearing member or a client.

$i$'s clearing member if $i$ is a client, either along with or immediately following the posted initial margin to reduce the QCCP's loss.

In calculating $EAD_i^{\text{SFT}}$, the minimum holding period used in the bilateral case for SFTs outlined in paragraph 40 of Attachment H of APS 112 must be applied.[20]

16. Step 2 is to compute the default fund capital charge for an ADI, $K_{ADI}$, as a fraction of $K_{QCCP}$. The capital charge for an ADI ($K_{ADI}$) is subject to a floor of 0.16 per cent (corresponding to a default fund exposure risk weight of two per cent) on an ADI prefunded default fund contribution. $K_{ADI}$ is determined by the ratio of the ADI's prefunded default fund contribution to the total of all prefunded resources and contributions from the QCCP itself and all of its clearing members, according to:

$$K_{ADI} = \max\left\{K_{QCCP} \times \left(\frac{DF_{ADI}}{DF_{CCP} + DF_{CM}}\right); 0.16\% \times DF_{ADI}\right\}$$

where:

$DF_{ADI}$ = the prefunded default fund contributions provided by the ADI;

$DF_{CM}$ = the total prefunded default fund contributions from all clearing members of the QCCP; and

$DF_{CCP}$ = the QCCP's prefunded own resources which are contributed to the default waterfall, where these are junior or *pari passu* to prefunded member contributions.

[20] See footnote 18.

# Attachment D — The standardised approach for measuring counterparty credit risk exposures (SA-CCR)

1. This Attachment is effective from 1 January 2018.

2. The SA-CCR applies to OTC derivative transactions, exchange traded derivative transactions, and long settlement transactions. For the purposes of this Attachment, a long settlement transaction must be treated as an OTC derivative transaction. SA-CCR does not apply to SFTs.

3. The SA-CCR must be used for bilateral and centrally-cleared derivative transactions. SA-CCR must be used for both margined[21] and unmargined[22] derivative transactions.

## Exposure at default (EAD)

4. To calculate EAD for:

   (a) unmargined transactions, apply the treatment in paragraphs 5 to 45 of this Attachment;

   (b) margined transactions where the set of transactions under a margin agreement and within the netting set coincide, apply the treatment in paragraphs 5 to 45 of this Attachment; and

   (c) margined transactions where the set of transactions under a margin agreement and within the netting set differ, apply the treatment in paragraphs 46 to 48 of this Attachment.

5. The EAD for all derivative transactions with a counterparty must be calculated as the sum of the EAD for each netting set with the counterparty. The EAD for a netting set must be calculated as:

$$EAD = 1.4 \times (RC + PFE)$$

   where $RC$ is the replacement cost (refer to paragraphs 8 to 10 of this Attachment) and $PFE$ is the potential future exposure (refer to paragraphs 11 to 45 of this Attachment).

6. Both centrally cleared and bilateral transactions must be treated as margined where a transaction is subject to exchange of variation margin. Bilateral transactions with a one-way margining agreement in favour of an ADI's

[21] Transactions are considered to be margined where there is exchange of variation margin. Other forms of collateral may also exist.

[22] Transactions are considered unmargined in the case that there is no exchange of variation margin, but collaterals other than VM such as in the form of independent collateral amount (ICA) may exist.

counterparty (that is, where an ADI posts, but does not collect, variation margin) must be treated as unmargined transactions.

7. The maximum EAD for a margined netting set is the EAD of the same netting set calculated as if it were unmargined.

## Replacement cost (RC)

8. The RC must be calculated for each netting set according to:

   (a) paragraph 9 for a netting set of unmargined transactions; or

   (b) paragraph 10 for a netting set of margined transactions.

*RC for an unmargined netting set*

9. For an unmargined netting set, the RC must be calculated as:

$$RC = \max\{V - C_H(1\text{ year}), 0\}$$

where:

$V =$ the total current market value of all the derivative transactions within the netting set; and

$C_H(1\text{ year}) =$ the haircut value of net non-cash collateral held by the ADI calculated using paragraph 29 of Attachment H of APS 112 with a holding period of one year.

*RC for a margined netting set*

10. For a margined netting set, the RC must be calculated as:

$$RC = \max\{V - C_H(\text{MPOR}), TH + MTA - NICA, 0\}$$

where:

$V =$ the total current market value of all the derivative transactions within the netting set;

$\text{MPOR} =$ the margin period of risk as defined in paragraph 10(m) of this Prudential Standard;

$C_H(\text{MPOR}) =$ the haircut value of net non-cash collateral held by the ADI calculated using paragraph 29 of Attachment H of APS 112 with a holding period equal to the MPOR;

$TH =$ the positive threshold above which the counterparty must send the ADI collateral as specified in the margin agreement;

$MTA =$ the minimum transfer amount applicable to the counterparty as specified in the margin agreement; and

$NICA =$ the net independent collateral amount.

## Potential future exposure (PFE)

11. The PFE for a netting set is determined by the aggregated PFE add-on factors for each asset class within a given netting set and a multiplier allowing partial recognition of excess collateral. The five asset classes are interest rate, foreign exchange, credit, equity and commodity.

12. An ADI must either assign each transaction to one of the five asset classes based on the single risk factor referenced by its underlying instrument, or, where a transaction is exposed to multiple risk factors referencing multiple asset classes, an ADI must follow the approach set out in paragraph 19 of this Attachment.

13. The PFE must be calculated as:

$$PFE = m \times AddOn^{aggregate}$$

with $m$ and $AddOn^{aggregate}$ calculated as:

$$m = \min\left\{0.05 + 0.95 \times e^{\left(\frac{V - C_H(\cdot)}{1.9 \times AddOn^{aggregate}}\right)}, 1\right\}$$

$$AddOn^{aggregate} = \sum_{a \in A} AddOn^{a}$$

where:

$m =$ the multiplier that allows for the recognition of over-collateralisation or negative mark-to-market value of the transactions. $m$ decreases to a minimum value of five per cent as excess collateral increases;

$V =$ the total current market value of all the derivative transactions within the netting set;

$\mathrm{C_H}(\cdot) = C_H(1 \text{ year})$ for unmargined transactions and $C_H(\mathrm{MPOR})$ for margined transactions (refer to paragraphs 9 and 10 of this Attachment, respectively);

$AddOn^{a} =$ the add-on factor for asset class $a$; and

$A =$ the set containing all asset classes (interest rate, foreign exchange, credit, equity and commodity).

14. For each asset class $a$, the add-on factor $AddOn^{a}$ must be calculated as the sum of all hedging set level $(j)$[23] add-ons within asset class $a$:

[23] In each of the asset class sections below, the following subscripts are used to describe the different levels within the SA-CCR framework (from lowest to highest): $i$ represents an individual derivatives transaction, $k$ represents a category within a hedging set, $j$ represents a hedging set within an asset class.

$$AddOn^{a} = \sum_{j} AddOn_{j}^{a}$$

where:

$AddOn_{j}^{a} =$ the positive add-on factor for hedging set $j$ within asset class $a$.

15. The definition of a hedging set for each asset class is provided in paragraph 18 of this Attachment. Treatment of basis and volatility transactions is provided in paragraph 16. The calculation of the add-on factor for a hedging set within each asset class is defined in the following paragraphs of this Attachment:

    (a) interest rate asset class, paragraphs 21 to 24;

    (b) foreign exchange asset class, paragraphs 25 to 27;

    (c) credit asset class, paragraphs 28 to 31;

    (d) equity asset class, paragraphs 32 to 35; and

    (e) commodity asset class, paragraphs 36 to 39.

16. Within each asset class, basis and volatility transactions must form separate hedging sets:

    (a) A basis transaction is a non-foreign exchange transaction (i.e. both legs are denominated in the same currency) in which the cash flows of both legs depend on different risk factors from the same asset class.[24] A separate hedging set[25] must be used for each basis risk (i.e. for each specific pair of risk factors) without dividing into further categories. For a hedging set consisting of basis transactions:

        (i) the absolute value must be applied to the add-on factor to ensure the result from each basis hedging set is positive; and

        (ii) the supervisory factor ($SF^{a}$) applicable to a given asset class $a$ as defined in paragraph 20 of this Attachment must be multiplied by one-half.

    (b) A volatility transaction is one in which the reference asset depends on the volatility (historical or implied) of a risk factor. For a hedging set consisting of volatility transactions:

        (i) the same hedging set category definition must be applied given the particular asset class (refer to paragraph 18 of this Attachment); and

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24 Derivative transactions with two floating legs that are denominated in different currencies (such as cross-currency swaps) must be treated as non-basis foreign exchange contracts.

25 Within this hedging set, long and short positions must be determined with respect to the basis.

(ii) the supervisory factor ($SF^a$) applicable to a given asset class $a$ as defined in paragraph 20 of this Attachment must be multiplied by five.

17. Aggregation of the add-on factors for basis and volatility hedging sets with those from other hedging sets within the same asset class must be performed according to the hedging set aggregation rule set out in paragraph 14 of this Attachment.

18. No offsetting is permitted across different hedging sets. Partial or full offsetting may be permitted within a single hedging set.[26] Permitted offsetting varies based on the particular asset class. Permitted offsetting for hedging sets other than basis hedging sets is summarised in Table 2.

Table 2: Definition of hedging sets and categories, and permitted offsetting within a single hedging set for each asset class

| **Asset class** | **Definition of hedging sets and categories** | **Permitted offsetting within a single hedging set** |
|---|---|---|
| Interest rate | A separate hedging set must be established for all transactions that reference interest rates of the same currency.<br><br>Each hedging set is further divided into three separate maturity categories. | Full offsetting is permitted in the same maturity category within each hedging set.<br><br>Partial offsetting may be recognised across different maturity categories within each hedging set. |
| Foreign exchange | A separate hedging set must be established for each currency pair.<br><br>No categories are defined within a hedging set. | Full offsetting is permitted within each hedging set. |
| Credit | All transactions form a single core hedging set.<br><br>The hedging set is further divided into separate categories for each reference entity, either single name or index. | Full offsetting is permitted within the same reference entity category within each hedging set.<br><br>Partial offsetting may be recognised across different reference entity categories within each hedging set. |
| Equity | All transactions form a single core hedging set.<br><br>The hedging set is further divided into separate | Full offsetting is permitted within the same reference entity category within each hedging set. |

[26] A hedging set $j$ within the asset class a represents one of the following three cases: (1) the core hedging set for the credit or equity class, or; (2) one of the hedging sets defined within the interest rate, foreign exchange or commodity class; or (3) one of the hedging sets defined for the basis or volatility transactions within asset class $a$.

| | | |
|---|---|---|
| | categories for each reference entity, either single name or index. | Partial offsetting may be recognised across different reference entity categories within each hedging set. |
| Commodity | A separate hedging set must be established for each of four broad groups of commodities:<br><br>• energy;[27]<br>• metals;<br>• agricultural; and<br>• other commodities.<br><br>Each hedging set is further divided into separate ADI-defined categories based on commodity type. | Full offsetting is permitted in the same commodity type category within each hedging set.<br><br>Partial offsetting may be recognised across different commodity type categories within each hedging set. |

*Allocation of a transaction to one or more asset classes*

19. An ADI must treat transactions with multiple risk factors in a consistent manner. When a transaction is exposed to multiple risk factors referencing multiple asset classes (e.g. multi-asset or hybrid derivative transactions), an ADI must:

    (a) measure and record the sensitivities and volatilities of each risk factor of that transaction;

    (b) repeat the process at regular intervals or when substantial market movements take place; and

    (c) assign the transaction to:

        (i) a single asset class where the ADI has determined that the transaction has a primary risk factor that is the clear main driver of profit and loss (P&L) volatility based on sensitivities and risk factor volatilities; or

        (ii) all applicable asset classes where the transaction does not have a primary risk factor and multiple risk factors are significant drivers of P&L volatility based on sensitivities and risk factor volatilities, except where APRA has granted approval to assign the transaction to a single asset class.

*Definition and notation of key parameters*

20. An ADI must use the definitions in Table 3 and paragraphs 40 to 45 of this Attachment when calculating the PFE add-ons. Transaction-level parameters are denoted with subscript $i$ representing transaction $i$.

[27] Consists of both electricity and oil/gas.

Table 3: Definition of transaction-level and supervisory parameters

| Symbol | Parameter | Definition |
|---|---|---|
| $d_i^a$ | Adjusted notional amount<br><br>(see paragraph 40) | The transaction-level adjusted notional amount for transaction $i$ belonging to asset class $a$. |
| $MF_i$ | Maturity factor<br><br>(see paragraph 44) | A multiplier used in determining the effective notional amount for transaction $i$. The maturity factor is calculated differently for margined and unmargined transactions. |
| $\delta_i$ | Supervisory delta adjustment<br><br>(see paragraphs 41 to 43) | A transaction-level supervisory delta adjustment reflecting the direction and non-linearity of transaction $i$. |
| $\rho^a$ | Supervisory correlation parameter<br><br>(see paragraph 45) | A supervisory parameter specifying the weight between systematic and idiosyncratic components in the one-factor model used in the credit, equity and commodity asset classes only. |
| $SF^a$ | Supervisory factor<br><br>(see paragraph 45) | A factor or factors specific to each asset class used to convert the effective notional amount into Effective expected positive exposure (Effective EPE) based on the measured volatility of the asset class. |
| $M_i$ | Maturity date | The time interval between the calculation date (today) and the latest date when transaction $i$ may still be active, measured in years. If transaction $i$ has another derivative contract as its underlying (e.g. a swaption) and may be physically exercised into the underlying contract (i.e. an ADI would assume a position in the underlying contract in the event of exercise), then $M_i$ must be set as the time interval between the calculation date and the final settlement date of the underlying derivative contract. |
| $S_i$ | Start date | The time interval between the calculation date (today) and the start date of the time period referenced by transaction $i$, measured in years. The time period referenced by transaction $i$ is subject to a floor of 10 business days. If the start date has occurred (e.g. an ongoing interest rate swap), $S_i$ must be set to zero. If transaction $i$ references the value of another interest rate or credit instrument (e.g. a swaption or bond option), the time period must be |

| | | |
|---|---|---|
| | | determined on the basis of the underlying instrument. This parameter, $S_i$, applies only to interest rate and credit transactions. |
| $E_i$ | End date | The time interval between the calculation date (today) and the end date of the time period referenced by transaction $i$, measured in years. The time period referenced by transaction $i$ is subject to a floor of 10 business days. If the start date has occurred (e.g. an ongoing interest rate swap), $S_i$ must be set to zero. If transaction $i$ references the value of another interest rate or credit instrument (e.g. a swaption or bond option), the time period must be determined on the basis of the underlying instrument. This parameter, $E_i$, applies only to interest rate and credit transactions. |

*Add-on for interest rate derivative transactions*

21. For the interest rate asset class, within each hedging set (see paragraph 18 of this Attachment), transactions must be divided into three maturity categories based on the end date of the transaction: less than one year ($k = 1$), between one to five years ( $k = 2$) and more than five years ($k = 3$).

22. For the interest rate asset class, the add-on for each hedging set $j$, $AddOn_j^{IR}$, must be calculated as:

$$AddOn_j^{IR} = SF^{IR} \times EffectiveNotional_j^{IR}$$

where:

$SF^{IR}$ = the supervisory factor for the interest rate asset class (see paragraph 45); and

$EffectiveNotional_j^{IR}$ = the hedging set level ($j$) effective notional amount defined in paragraph 23.

23. The effective notional amount for hedging set $j$, $EffectiveNotional_j^{IR}$, is the aggregate effective notional amounts across the three maturity categories. An ADI must aggregate the three category-level ($k$) effective notional amounts by one of the following two means:

(a) where partial offsetting is recognised:

$$EffectiveNotional_j^{IR}$$
$$= \sqrt{\left(\sum_{k\in\{1,2,3\}} \left(D_{j,k}^{IR}\right)^2\right) + 1.4 \times D_{j,1}^{IR} \times D_{j,2}^{IR} + 1.4 \times D_{j,2}^{IR} \times D_{j,3}^{IR} + 0.6 \times D_{j,1}^{IR} \times D_{j,3}^{IR}}$$

(b) where no offsetting is recognised:

$$EffectiveNotional_j^{IR} = \sum_{k\in\{1,2,3\}} \left|D_{j,k}^{IR}\right|$$

where $D_{j,k}^{IR} =$ the effective notional amount for category $k$, defined in paragraph 24.

24. The effective notional amount for category $k$, denoted by $D_{j,k}^{IR}$, must be calculated as the sum of all individual transaction level ($i$) quantities, according to:

$$D_{j,k}^{IR} = \sum_{i\in I(j,k)} \delta_i \times d_i^{IR} \times MF_i$$

where:

$I(j,k) =$ the set of all interest rate transactions belonging to maturity category $k$ and hedging set $j$;

$\delta_i =$ the supervisory delta adjustment for transaction $i$, calculated according to paragraphs 41 to 43;

$MF_i =$ the maturity factor for transaction $i$, calculated according to paragraph 44; and

$d_i^{IR} =$ the adjusted notional amount for transaction $i$, and must be calculated as:

$$d_i^{IR} = N_i \times \left(\frac{e^{-0.05S_i} - e^{-0.05E_i}}{0.05}\right)$$

where:

$N_i =$ the notional amount of transaction $i$, converted to AUD, using the exchange rate on the calculation date. The parameter $N_i$ is also subject to the requirements in paragraph 40 of this Attachment;

$S_i =$ the start date for transaction $i$; and

$E_i =$ the end date for transaction $i$.

*Add-on for foreign exchange derivative transactions*

25. For the foreign exchange asset class, hedging sets must be constructed according to paragraph 18 of this Attachment.

26. The add-on for each hedging set $j$, $AddOn_j^{FX}$, must be calculated as:

$$AddOn_j^{FX} = SF^{FX} \times \left|EffectiveNotional_j^{FX}\right|$$

where:

$SF^{FX} =$ the supervisory factor for the foreign exchange asset class (see paragraph 45); and

$EffectiveNotional_j^{FX} =$ effective notional amount for hedging set $j$, calculated according to paragraph 27.

27. The effective notional amount for hedging set $j$, denoted by $EffectiveNotional_j^{FX}$, must be calculated as the sum of all individual transaction level ($i$) quantities, according to:

$$EffectiveNotional_j^{FX} = \sum_{i \in I(j)} \delta_i \times d_i^{FX} \times MF_i$$

where:

$I(j) =$ the set of all foreign exchange transactions belonging to hedging set $j$;

$\delta_i =$ the supervisory delta adjustment for transaction $i$, calculated according to paragraphs 41 to 43;

$MF_i =$ the maturity factor for transaction $i$, calculated according to paragraph 44; and

$d_i^{FX} =$ the adjusted notional amount for transaction $i$. It must be set as the notional of the foreign currency leg of transaction $i$, converted to AUD using the exchange rate on the calculation date. If both legs are denominated in currencies other than AUD, the notional amount of each leg must first be converted to AUD using the exchange rate on the calculation date and $d_i^{FX}$ must be set as the leg with the larger AUD value. The adjusted notional amount is also subject to the requirements in paragraph 40 of this Attachment.

*Add-on for credit derivative transactions*

28. With the exception of separate hedging sets for basis and volatility transactions, a single core hedging set must be used for all credit derivative transactions. Within the core hedging set (see paragraph 18 of this Attachment), transactions must be further divided into different categories, with each category ($k$) containing all the transactions referencing the same entity $k$. Each single name entity or index is a separate category.

29. The add-on factor for the single core hedging set for the credit asset class, $AddOn_{CORE}^{CR}$, must be calculated as:

$$AddOn_{CORE}^{CR} = \sqrt{\left[\sum_k \left(\rho_k^{CR} \times AddOn_{CORE,k}^{CR}\right)\right]^2 + \sum_k \left\{[1 - (\rho_k^{CR})^2] \times \left(AddOn_{CORE,k}^{CR}\right)^2\right\}}$$

where:

$\rho_k^{CR}$ = the supervisory correlation parameter for category $k$. An ADI must determine $\rho_k^{CR}$ depending on whether $k$ is a single name or index entity according to paragraph 45; and

$AddOn_{CORE,k}^{CR}$ = the add-on factor for category $k$, calculated according to paragraph 30.

30. The add-on factor for category $k$, $AddOn_{CORE,k}^{CR}$, must be calculated as:

$$AddOn_{CORE,k}^{CR} = SF_k^{CR} \times EffectiveNotional_{CORE,k}^{CR}$$

where:

$SF_k^{CR}$ = the supervisory factor for the rating class of category $k$ (i.e. reference entity $k$) determined according to paragraph 45; and

$EffectiveNotional_{CORE,k}^{CR}$ = the category-level ($k$) effective notional amount, calculated according to paragraph 31.

31. The effective notional amount for category $k$, $EffectiveNotional_{CORE,k}^{CR}$, must be calculated as the sum of all individual transaction level ($i$) quantities, according to:

$$EffectiveNotional_{CORE,k}^{CR} = \sum_{i \in I(CORE,k)} \delta_i \times d_i^{CR} \times MF_i$$

where:

$I(CORE, k)$ = the set of all transactions belonging to category $k$ (i.e. reference entity $k$) within the core credit hedging set;

$\delta_i$ = the supervisory delta adjustment for transaction $i$, calculated according to paragraphs 41 to 43;

$MF_i$ = the maturity factor for transaction $i$, calculated according to paragraph 44; and

$d_i^{CR}$ = the adjusted notional amount for transaction $i$, calculated as:

$$d_i^{CR} = N_i \times \left( \frac{e^{-0.05S_i} - e^{-0.05E_i}}{0.05} \right)$$

where:

$N_i$ is the notional amount of transaction $i$, converted to AUD, using the exchange rate on the calculation date. The parameter $N_i$ is also subject to the requirements in paragraph 40 of this Attachment;

$S_i$ is the start date for transaction $i$; and

$E_i$ is the end date for transaction $i$.

*Add-on for equity derivative transactions*

32. With the exception of separate hedging sets for basis and volatility transactions, a single core hedging set must be used for all equity derivative transactions. Within the core hedging set (see paragraph 18 of this Attachment), transactions must be further divided into categories, with each category ($k$) containing all the transactions referencing the same entity $k$. Each single name entity or index is a separate category.

33. The add-on factor for the single core hedging set for the equity asset class, $AddOn_{CORE}^{EQ}$, must be calculated as:

$$AddOn_{CORE}^{EQ} = \sqrt{\left[\sum_k \left(\rho_k^{EQ} \times AddOn_{CORE,k}^{EQ}\right)\right]^2 + \sum_k \left\{\left[1 - \left(\rho_k^{EQ}\right)^2\right] \times \left(AddOn_{CORE,k}^{EQ}\right)^2\right\}}$$

where:

$\rho_k^{EQ}$ = the supervisory correlation parameter for category $k$. An ADI must determine $\rho_k^{EQ}$ depending on whether $k$ is a single name or index entity, according to paragraph 45 of this Attachment; and

$AddOn_{CORE,k}^{EQ}$ = the add-on factor for category $k$, calculated according to paragraph 34.

34. The add-on factor for category $k$, $AddOn_{CORE,k}^{EQ}$, must be calculated as:

$$AddOn_{CORE,k}^{EQ} = SF_k^{EQ} \times EffectiveNotional_{CORE,k}^{EQ}$$

where:

$SF_k^{EQ}$ = the supervisory factor for category $k$ determined according to paragraph 45; and

$EffectiveNotional_{CORE,k}^{EQ}$ = the category-level ($k$) effective notional amount, calculated according to paragraph 35.

35. The effective notional amount for category $k$, denoted by $EffectiveNotional_{CORE,k}^{EQ}$, must be calculated as the sum of all individual transaction level ($i$) quantities, according to:

$$EffectiveNotional_{CORE,k}^{EQ} = \sum_{i \in I(CORE,k)} \delta_i \times d_i^{EQ} \times MF_i$$

where:

$I(CORE, k)$ = the set of all transactions belonging to category $k$ (i.e. reference entity $k$) within the core equity hedging set;

$\delta_i$ = the supervisory delta adjustment for transaction $i$, calculated according to paragraphs 41 to 43;

$MF_i$ = the maturity factor for transaction $i$, calculated according to paragraph 44; and

$d_i^{EQ}$ = the adjusted notional amount for transaction $i$, and must be calculated as the product of the current price of one unit of the stock and the number of units referenced by transaction $i$. The adjusted notional amount is also subject to the requirements in paragraph 40 of this Attachment.

*Add-on for commodity derivative transactions*

36. For the commodity asset class, within each hedging set (see paragraph 18 of this Attachment), transactions must be further divided into categories, each one ($k$) containing all the transactions belonging to the same commodity type. An ADI must specify categories based on commodity type that are more granular than the four broad commodity groups defined in paragraph 18 of this Attachment. An ADI must determine the commodity types such that all material basis risks[28] are captured. All uncaptured basis risks must be formally identified and regularly monitored. An ADI must also regularly review and update the categorisation of commodity types to reflect any significant changes in materiality. Where an ADI is unable to demonstrate to APRA's satisfaction that the basis risks are appropriately captured or monitored, APRA may require the ADI to use a more refined set of commodity types.

37. The add-on for each of the four hedging sets $j$, $AddOn_j^{COM}$, must be calculated as:

[28] These basis risks arise due to the impracticality and difficulty in specifying all relevant distinctions between commodity types (e.g. location and quality) within the same hedging set.

$$AddOn_j^{COM} = \sqrt{\left[\sum_k \left(\rho^{COM} \times AddOn_{j,k}^{COM}\right)\right]^2 + \sum_k \left\{[1 - (\rho^{COM})^2] \times \left(AddOn_{j,k}^{COM}\right)^2\right\}}$$

where:

$\rho^{COM}$ = the supervisory correlation parameter for the commodity asset class; and

$AddOn_{j,k}^{COM}$ = the add-on factor for category $k$, calculated according to paragraph 38.

38. The add-on factor for category $k$ within hedging set $j$, $AddOn_{j,k}^{COM}$, must be calculated as:

$$AddOn_{j,k}^{COM} = SF_k^{COM} \times EffectiveNotional_{j,k}^{COM}$$

where:

$SF_k^{COM}$ = the supervisory factor for the commodity group[29] for category (i.e. commodity type) $k$, calculated according to paragraph 45; and

$EffectiveNotional_{j,k}^{COM}$ = the effective notional amount for category $k$, calculated according to paragraph 39.

39. The effective notional amount for category $k$, denoted by $EffectiveNotional_{j,k}^{COM}$, must be calculated as the sum of all individual transaction level (i) quantities, according to:

$$EffectiveNotional_{j,k}^{COM} = \sum_{i \in I(j,k)} \delta_i \times d_i^{COM} \times MF_i$$

where:

$I(j,k)$ = the set of all transactions belonging to category $k$ and hedging set $j$;

$\delta_i$ = the supervisory delta adjustment for transaction $i$, calculated according to paragraphs 41 to 43;

$MF_i$ = the maturity factor for transaction $i$, calculated according to paragraph 44; and

$d_i^{COM}$ = the adjusted notional amount for transaction $i$, and must be calculated as the product of the current price of one unit of the commodity and the number of

[29] The groups used for determining the supervisory factors are slightly more granular than that used for defining the four hedging sets. In this case, the energy group is further divided into electricity and oil/gas.

units referenced by transaction $i$. The adjusted notional amount is also subject to the requirements in paragraph 40 of this Attachment.

## Transaction-level and supervisory parameters

*Adjusted notional amount*

40. For each transaction $i$ in all asset classes, the adjusted notional amount, $d_i^a$, is derived from transaction $i$'s trade notional amount. In many cases the trade notional amount is stated clearly and fixed until maturity. Where this is not the case, an ADI must apply the following rules to determine the trade notional amount:

    (a) for transactions with multiple payoffs that are state contingent such as digital options or target redemption forwards, an ADI must calculate the trade notional amount for each state and use the largest resulting calculation;

    (b) where the notional is a formula of market values, an ADI must use the current market values to determine the trade notional amount;

    (c) for interest rate and credit derivative transactions with variable notional amounts specified by the contract such as amortising and accreting swaps, an ADI must use the time weighted average notional over the remaining life of the swap as the trade notional amount;

    (d) for a leveraged swap, the transaction must be converted to the notional of the equivalent unleveraged swap; that is, where all rates in a swap are multiplied by a factor, the stated notional must be multiplied by the factor on the interest rates;

    (e) for a derivative contract with multiple exchanges of principal, the notional is multiplied by the number of exchanges of principal in the derivative contract; and

    (f) for a derivative contract that is structured such that on specified dates any outstanding exposure is settled and the terms are reset so that the fair value of the contract is zero, the remaining maturity equals the time until the next reset date.

*Supervisory delta adjustment*

41. For each transaction (other than options or collateralised debt obligation (CDO) tranches, see paragraphs 42 and 43, respectively), the supervisory delta adjustment, $\delta_i$, must be assigned based on whether transaction $i$ is long or short in either: (i) the risk factor if $i$ is exposed to single risk factor, or (ii) the primary risk factor if $i$ is exposed to multiple risk factors:

    (a) Transaction $i$ is long in the risk factor if the market value of $i$ increases when the risk factor increases. Where transaction $i$ is long in the risk factor, the supervisory delta adjustment $\delta_i$ must be set to the value of 1.

(b) Transaction $i$ is short in the risk factor if the market value of $i$ decreases when the risk factor increases. Where transaction $i$ is short in the risk factor, the supervisory delta adjustment $\delta_i$ must be set to the value of -1.

42. For options in all asset classes, the supervisory delta adjustment $\delta_i$ must be set according to Table 4 below:

Table 4: Supervisory delta adjustment for options

| | **Bought** | **Sold** |
|---|---|---|
| Call options | $\Phi\left(\frac{\ln\left(\frac{P_i}{K_i}\right) + 0.5 \times \sigma_i^2 \times T_i}{\sigma_i \times \sqrt{T_i}}\right)$ | $-\Phi\left(\frac{\ln\left(\frac{P_i}{K_i}\right) + 0.5 \times \sigma_i^2 \times T_i}{\sigma_i \times \sqrt{T_i}}\right)$ |
| Put options | $-\Phi\left(-\frac{\ln\left(\frac{P_i}{K_i}\right) + 0.5 \times \sigma_i^2 \times T_i}{\sigma_i \times \sqrt{T_i}}\right)$ | $\Phi\left(-\frac{\ln\left(\frac{P_i}{K_i}\right) + 0.5 \times \sigma_i^2 \times T_i}{\sigma_i \times \sqrt{T_i}}\right)$ |

where:

$\Phi(\cdot)$ represents the standard normal cumulative distribution function;

$T_i =$ the time interval between the calculation date (today) and the latest contractual exercise date as referenced by transaction $i$, measured in years;

$P_i =$ the underlying price[30] of option $i$;

$K_i =$ the strike price of option $i$; and

$\sigma_i =$ the supervisory volatility of the option $i$.

43. For tranches of CDOs in the credit asset class, the supervisory delta adjustment $\delta_i$ must be set according to Table 5:

Table 5: Supervisory delta adjustment for CDO tranches

| **Purchased (long protection)** | **Sold (short protection)** |
|---|---|
| $\frac{15}{(14A_i + 1) \times (14D_i + 1)}$ | $-\frac{15}{(14A_i + 1) \times (14D_i + 1)}$ |

where:

30 Whenever appropriate, forward (rather than spot) value of the underlying should be used in order to account for the risk-free rate as well as for possible cash flows prior to the option expiry, such as dividends.

$A_i$ = the attachment point of the CDO tranche for transaction $i$; and

$D_i$ = the detachment point of the CDO tranche for transaction $i$.

*Maturity Factor*

44. The maturity factor is set differently for margined and unmargined transactions. When the SA-CCR methodology is used by a clearing member ADI, the clearing member ADI must determine the MPOR and the maturity factor in conjunction with the requirements of paragraphs 12 and 19 of Attachment B of this Prudential Standard.

(a) For an unmargined transaction, the maturity factor $MF_i$ must be set as:

$$MF_i = \sqrt{\min\{M_i, 1\}}$$

where:

$M_i$ is the maturity date for transaction $i$ as defined in paragraph 20 of this Attachment, subject to a floor of 10 business days.

(b) For a margined transaction, the maturity factor $MF_i$ must be set as:

$$MF_i = 1.5\sqrt{MPOR_i}$$

where:

$MPOR_i$ represents the margin period of risk as defined in paragraph 10(m) of this Prudential Standard.

45. When calculating the PFE add-on for each asset class, the supervisory factor, the supervisory correlation parameter and the supervisory volatility are as given in Table 6.

Table 6: Summary table of supervisory parameters

| **Asset class** | | **Supervisory factor (SF) (%)**[31] | **Supervisory Correlation (ρ) (%)** | **Supervisory volatility (σ) (%)** |
|---|---|---|---|---|
| Interest rate | | 0.5 | N/A | 50 |
| Foreign exchange | | 4.0 | N/A | 15 |
| Credit single name | Credit rating grade 1 | 0.38 | 50 | 100 |

[31] The applicable supervisory factor must be multiplied by one-half for basis transactions and multiplied by a factor of five for volatility transactions, as specified in paragraph 16 of this Attachment.

| | | | | |
|---|---|---|---|---|
| | Credit rating grade 2 | 0.42 | | |
| | Credit rating grade 3 | 0.54 | | |
| | Credit rating grade 4 | 1.06 | | |
| | Credit rating grade 5 | 1.60 | | |
| | Credit rating grade 6 | 6.0 | | |
| Credit index | Investment grade (IG) | 0.38 | 80 | 80 |
| | Sub-investment grade (SG) | 1.06 | | |
| Equity single name | | 32 | 50 | 120 |
| Equity index | | 20 | 80 | 75 |
| Commodity | Electricity | 40 | 40 | 150 |
| | Oil/gas | 18 | | 70 |
| | Metals | | | |
| | Agricultural | | | |
| | Other | | | |

*Treatment of multiple margin agreements and multiple netting sets*

46. Where the transactions under a given margin agreement and netting set do not coincide, an ADI must follow an alternative treatment:

    (a) where multiple margin agreements apply to a single netting set, an ADI must follow the treatment set out in paragraph 47 of this Attachment; or

    (b) where there are multiple netting sets within a single margin agreement, an ADI must follow the treatment set out in paragraph 48 of this Attachment.

47. Where multiple margin agreements apply to a single netting set, the netting set must be divided into sub-netting sets, each aligning with its respective margin agreement. The EAD of the original netting set must then be obtained by taking the sum of the EAD of each sub-netting set. The EAD for each sub-netting set is calculated according to paragraphs 40 to 45 of this Attachment using the relevant sub-netting set-level (i.e. margin agreement-level) parameters.[32]

[32] These parameters include $C$, $TH$, $MTA$ and $NICA$.

48. Where a single margin agreement applies to multiple netting sets, an ADI must calculate the EAD for the netting sets by:

    (a) calculating the replacement cost (RC) for all netting sets ($RC_{MA}$) contained within a single margin agreement ($MA$) on the aggregate margin agreement level,[33] as common collateral cannot clearly be allocated to an individual netting set. The aggregate RC for all netting sets under a single margin agreement must be calculated as:

$$RC_{MA} = \max\left\{\left(\sum_{NS \in MA} \max\{V_{NS}, 0\}\right) - \max\{C_{MA}, 0\}, 0\right\} + \max\left\{\left(\sum_{NS \in MA} \min\{V_{NS}, 0\}\right) - \min\{C_{MA}, 0\}, 0\right\}$$

    where:

    $V_{NS} =$ the current net mark-to-market value of all derivative transactions within the netting set NS; and

    $C_{MA} =$ the net haircut value of all currently available collateral (including both NICA and VM) under the margin agreement; and

    (b) calculating the PFE for the margin agreement ($PFE_{MA}$), by taking the sum of all the netting set-level PFE factors. The PFE add-on factor for each netting set under the margin agreement must be calculated according to the methodology for unmargined transactions.

[33] This is opposed to the simplest case where the set of transactions under a margin agreement and within the netting set coincide, in which case the replacement cost is calculated on the individual netting set-level (NS).

# Attachment E — The current exposure method (CEM)

1. This Attachment is effective until 31 December 2018.

2. For the purpose of calculating counterparty credit risk requirements under the CEM, an ADI must calculate the CEA of its market-related contracts. Where these contracts are not covered by an eligible bilateral netting agreement as set out in Attachment J of APS 112, the ADI must calculate the CEA by using the current exposure method: this method is the sum of current credit exposure and potential future credit exposure (the add-on) of these contracts. Current credit exposure is defined as the sum of the positive mark-to-market value (or replacement cost) of these contracts.

3. An ADI must, for the purpose of calculating its potential future credit exposure for each transaction, multiply the notional principal amount of each of these transactions by the relevant credit conversion factor (CCF) specified in Table 7.

   Table 7: Current exposure method - market-related CCFs

| **Residual maturity** | **Interest rate contracts (%)** | **Foreign exchange and gold contracts (%)** | **Equity contracts (%)** | **Precious metal contracts (other than gold) (%)** | **Other commodity contracts (other than precious metals) (%)** |
|---|---|---|---|---|---|
| ≤ 1 year | 0.0 | 1.0 | 6.0 | 7.0 | 10.0 |
| >1 year, ≤ 5 years | 0.5 | 5.0 | 8.0 | 7.0 | 12.0 |
| >5 years | 1.5 | 7.5 | 10.0 | 8.0 | 15.0 |

4. The notional or nominal principal amount, or value, of a contract must be the reference amount used to calculate payment streams between counterparties to a contract.

5. Potential future credit exposure must be based on effective rather than apparent notional amounts. In the event that the stated notional amount of a contract is leveraged or enhanced by the structure of the transaction, an ADI must use the effective notional amount when calculating potential future credit exposure.

6. No potential future credit exposure is calculated for single currency floating/floating interest rate swaps as the credit exposure on these contracts must be evaluated solely on the basis of their mark-to-market values.

7. For contracts that are structured to settle outstanding exposures following specified payment dates where the terms are reset such that the mark-to-market value of the contract is zero on these specified dates, the residual maturity must be set equal to the time until the next reset date. In the case of interest rate contracts with these features and a remaining maturity of more than one year, the

CCF to be applied is subject to a floor of 0.5 per cent even if there are reset dates of a shorter maturity.

8. For contracts with multiple exchanges of principal, the CCFs must be multiplied by the number of remaining payments (i.e. exchanges of principal) still to be made under the contract.

9. Contracts that do not fall within one of the specific categories listed in Table 7 must be treated as 'other commodities contracts'.

10. An ADI must calculate the counterparty credit risk requirement for single name credit default swaps and single name total-rate-of-return swaps in the trading book using the potential future exposure CCFs in Table 8. Counterparty risk weightings for OTC derivative transactions will not be subject to any specific ceiling.

Table 8: Potential future exposure credit conversion factors

| **Type of swap** | **Protection buyer** | **Protection seller**[34] |
|---|---|---|
| Credit default swap | | |
| Qualifying[35] reference obligation | 5% | 5% |
| Non-qualifying reference obligation | 10% | 10% |
| Total-rate-of-return swap | | |
| Qualifying reference obligation | 5% | 5% |
| Non-qualifying reference obligation | 10% | 10% |

11. An ADI, in calculating the counterparty credit risk requirement for an nth-to-default credit derivative transaction (such as a first-to-default transaction), must use the add-on determined by the nth-lowest credit quality underlying asset in the basket.

## Calculation of exposure: Over-the-counter derivative transactions covered by an eligible bilateral netting agreement

12. An ADI that satisfies the requirements in Attachment J of APS 112 for netting may report, for capital adequacy purposes, OTC derivative transactions (in both the banking and trading book) on a net basis and calculate the CEA of these transactions in accordance with the methodology outlined below.

### *Credit equivalent amount*

13. An ADI must use the current exposure method to calculate the exposure for OTC derivative transactions that fall under netting agreements for capital adequacy purposes.

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34 The protection seller of a credit default swap would only be subject to the add-on factor where it is subject to closeout upon the insolvency of the protection buyer while the underlying asset is still solvent. The add-on should be capped to the amount of unpaid premiums.

35 The definition of qualifying is the same as for the qualifying category for the treatment of specific risk under the standardised measurement method in APS 116.

14. The CEA of transactions subject to a netting agreement must be calculated as the sum of the net current credit exposure (NCCE) (i.e. net mark-to-market replacement cost) of all transactions covered by the netting agreement, if positive, plus an add-on ($PFCE_{adj}$) for potential future credit exposure based on the notional principal of all the individual underlying contracts (i.e. the gross potential future credit exposure) adjusted to reflect the effects of the netting agreement. Thus:

$$CEA = NCCE \text{ (if positive)} + PFCE_{adj}$$

*Net current credit exposure*

15. NCCE is the sum of all positive and negative mark-to-market values of all individual contracts covered by a netting agreement (i.e. positive mark-to-market values of transactions may be offset against negative mark-to-market values on other transactions covered by the netting agreement). If the net sum of individual mark-to-market values is positive, the NCCE is equal to that sum. If the sum of mark-to-market values is zero or negative, the NCCE is set equal to zero.

*Potential future credit exposure*

16. An ADI must recognise the effects of netting agreements on its potential future credit exposure by applying the formula below to produce an adjusted add-on amount for potential future credit exposure on all contracts subject to the netting agreement. Thus:

$$PFCE_{adj} = 0.4(PFCE_{gross}) + 0.6\ (NGR \times PFCE_{gross})$$

17. The potential future credit exposure ($PFCE_{gross}$) is calculated as the sum of an ADI's potential future credit exposure for each individual transaction covered by a netting agreement with a counterparty as if no netting would occur (with the exception of transactions covered by paragraph 15 of this Attachment). Potential future credit exposure for each transaction is calculated by multiplying the notional principal amount of the transaction by the appropriate CCF for that transaction as set out in Table 7.

18. For the purpose of calculating $PFCE_{gross}$, an ADI may treat matching transactions included in a netting agreement as a single transaction with a notional principal equivalent to the net receipts on those transactions. For this purpose, matching transactions are defined as forward foreign exchange and other similar market-related transactions in which the notional principal is equivalent to cash flows, where the cash flows fall due on the same value date and are in the same currency.

19. The net to gross ratio (NGR) is the ratio of the net current exposure of all transactions included in a netting agreement to the gross current credit exposure (GCCE) of these same transactions. GCCE is the sum of the mark-to-market values of all transactions covered by a netting agreement with a positive mark-to-market value with no offsetting against contracts with a negative mark-to-market value (with the exception of transactions covered by paragraph 15 of this Attachment). The NGR reflects the risk reducing portfolio effects of netted transactions with respect to current credit exposure. Thus:

NGR = NCCE/GCCE

20. The NGR may be calculated using one of the following approaches:

    (a) counterparty-by-counterparty approach – under this approach a unique NGR is applied to each counterparty in calculating the CEA of transactions with that counterparty. NGR is defined as the NCCE of all transactions with an individual counterparty covered by a netting agreement (i.e. $NCCE_{individual}$) divided by the GCCE of all the transactions with that counterparty covered by the netting agreement (i.e. $GCCE_{individual}$). In calculating $GCCE_{individual}$, negative mark-to-market values for individual transactions with the same counterparty may not be used to offset positive mark-to-market values for other transactions with the same counterparty; or

    (b) aggregate approach – under this approach a single NGR is calculated and applied to all counterparties in calculating the CEA for transactions with each of those counterparties. The NGR is the ratio of the sum of all NCCEs of all transactions with all counterparties subject to any netting agreement (i.e. $NCCE_{aggregate}$) to the sum of all of the GCCEs for all transactions of all counterparties subject to any netting agreement (i.e. $GCCE_{aggregate}$). In calculating $GCCE_{aggregate}$, negative mark-to-market values of transactions with one counterparty cannot be used to offset positive mark-to-market values of transactions with that counterparty or any other counterparty included in the aggregate calculations.

21. An ADI must consistently use either the counterparty-by-counterparty approach or the aggregate approach to calculate the NGR and must inform APRA of which approach it intends to use.

*Risk-weighted amount*

22. With respect to the netted exposures determined in paragraphs 12 to 21 of this Attachment, an ADI must assign the relevant risk-weight applicable to a counterparty, or if eligible, the risk-weight of a guarantor or collateral to the CEA.

23. For the purposes of paragraph 28 of Attachment H of APS 112, potential future exposure is $PFCE_{adj}$ as determined in paragraph 16 of this Attachment.

# Attachment F — Counterparty credit risk for bilateral and centrally cleared transactions (formerly Attachment C of APS 112)

1. This Attachment is effective until 31 December 2018.

## Counterparty credit risk (CCR) capital requirements

2. CCR capital requirements apply to off-balance sheet contracts only, including OTC derivative transactions, exchange-traded derivatives and SFTs.

3. For bilateral trades with a counterparty that is not recognised as a QCCP, the CCR capital requirement comprises the counterparty credit default risk capital requirement and the CVA risk capital charge. The counterparty credit default risk requirement covers the losses arising from the default of a counterparty, and the CVA risk capital charge accounts for mark-to-market losses arising from the deterioration of the counterparty's credit quality.

4. For centrally cleared trades with a QCCP, the CCR capital requirement comprises the default fund charge (for an ADI accessing the QCCP directly as a clearing member), and a lower risk-weighted counterparty credit default risk capital charge on trade exposures including posted collateral. Trades cleared through a non-qualifying CCP, and client trades that do not meet the requirements set out in paragraph 26 of this Attachment, must be treated on a bilateral basis according to paragraph 3 of this Attachment.

5. An ADI, other than an ADI with either funded or unfunded default fund contributions to a CCP, may apply to APRA for permission to calculate its CVA risk capital requirement using a simplified approach, instead of the approach set out in paragraphs 9 to 14 of this Attachment. Where APRA is satisfied that the nature and scale of the ADI's OTC derivatives usage are such that the resulting CCR exposures are not sufficiently material, then it may allow an ADI to calculate its CVA risk capital charge as equal to its counterparty credit default risk capital requirement.

## Counterparty credit default risk capital treatment

6. The risk-weighted assets (RWA) requirement for counterparty credit default risk for an off-balance sheet transaction that gives rise to credit exposure must be calculated by the following three-step process:

   (a) the notional amount of the transaction must be converted into an on-balance sheet equivalent (CEA), by multiplying the amount by a specified CCF (refer to Attachment E of this Prudential Standard), and adding this to the replacement cost (the marked-to-market value, if positive). For OTC derivatives, the CEA is calculated on a counterparty level and is then adjusted by subtracting the credit value adjustment (CVA) amount for that counterparty, which has already been recognised by the ADI as an incurred write-down (i.e. a CVA loss). The ADI must calculate the incurred CVA loss according to its own valuation methodology. The CVA must not

include any debit value adjustment. No such adjustment is required for SFT transactions;

(b) where the transaction is secured by eligible collateral or there is an eligible guarantee, credit derivative or netting arrangement in place, the CRM techniques detailed in Attachment G, Attachment H, Attachment I and Attachment J of APS 112 may be used to reduce the capital requirement of the exposure; and

(c) the resulting CEA must be multiplied by the risk-weight (refer to Attachment A of APS 112) applicable to the counterparty or type of exposure.

7. The counterparty-level CEA for bilateral OTC derivatives and exchange-traded derivatives is calculated by adding together the following:

(a) for each transaction not covered by an eligible bilateral netting agreement, the CEA is calculated under Attachment E of this Prudential Standard and adjusted for collateralisation of that transaction under paragraph 28 of Attachment H of APS 112;

(b) for transactions covered by an eligible bilateral netting agreement, the CEA is calculated under paragraph 14 of Attachment E of this Prudential Standard and adjusted for collateralisation of that netting set under paragraph 28 of Attachment H of APS 112.

8. The CEA amount for securities financing transactions (SFTs) is calculated by adding together the following:

(a) for a single uncollateralised SFT, the CEA calculated under paragraph 1 of Attachment B of APS 112;

(b) for a single collateralised SFT, the CEA calculated under paragraph 27 of Attachment H of APS 112; and

(c) for collateralised SFTs covered by an eligible bilateral netting agreement, the CEA calculated under paragraph 26 of Attachment J of APS 112.

## CVA risk capital charge

9. An ADI must calculate a CVA risk capital charge to cover the risk of mark-to-market losses on the expected CCR (CVA loss) to OTC derivatives. An ADI is not required to include in its CVA risk capital charge:

(a) transactions cleared through a QCCP; and

(b) SFTs, unless APRA determines that the ADI's CVA loss exposures arising from SFT transactions are material.

10. An ADI must calculate its CVA risk capital charge ($K_{CVA}$) according to one of the three following formulae:

(a) an ADI that has exposures arising from OTC derivatives with only one counterparty must calculate its CVA risk capital charge as:

$$K_{CVA} = 2.33 \times w \times M \times D \times CEA^{total}$$

where:

$w =$ the weight applicable to the counterparty determined according to paragraph 11 of this Attachment;

$M =$ the weighted average maturity in years (weighted by notional amount) of all OTC transactions with the counterparty, determined according to paragraphs 33 to 41 of Attachment B of APS 113, except that $M$ is not capped at 5 years;

$CEA^{total} =$ the total CEA for the counterparty calculated according to paragraph 7 of this Attachment, without any adjustment for incurred CVA; and[36]

$$D = \frac{1 - e^{-0.05M}}{0.05\text{M}}$$

If there is more than one netting-set to the same counterparty, an ADI must determine $M$, $D$ and $CEA^{total}$ separately for each netting set, and calculate the sum of $M \times D \times CEA^{total}$ over all netting sets. The calculation of $M$ applies at the netting set level;

(b) an ADI that has exposures arising from OTC derivatives with more than one counterparty, but does not allow for CVA hedges in accordance with paragraph 13 of this Attachment, must calculate its CVA risk capital charge as:

$$K_{CVA} = 2.33 \sqrt{0.25\left(\sum_i w_i M_i D_i CEA_i^{total}\right)^2 + 0.75\sum_i \left(w_i M_i D_i CEA_i^{total}\right)^2}$$

where the summations (subscript i) are by counterparty;

(c) an ADI that has exposures arising from OTC derivatives with more than one counterparty, and has in place eligible CVA hedges in accordance with paragraph 13 of this Attachment, must calculate its CVA risk capital charge as:

[36] $D$ is the discount factor based on a continuously compounding interest rate of 5% p.a., and term to maturity of $M$ years, and $e$ (≈2.71828) is the base of the natural logarithm.

$$K_{CVA} = 2.33\sqrt{\left(\sum_i 0.5w_i\left(M_i D_i CEA_i^{total} - M_i^{hedge} D_i^{hedge} B_i\right) - \sum_{ind} w_{ind} M_{ind} D_{ind} B_{ind}\right)^2 + 0.75\sum_i w_i{}^2\left(M_i D_i CEA_i^{total} - M_i^{hedge} D_i^{hedge} B_i\right)^2}$$

where:

$M_i^{hedge}$ = the maturity in years of the purchased single name CDS hedge referencing counterparty i and used to hedge CVA risk;

$$D_i^{hedge} = \frac{1 - e^{-0.05M_i^{hedge}}}{0.05M_i^{hedge}}$$

$B_i =$ the notional amount of the purchased single-name CDS hedge referencing counterparty i and used to hedge CVA risk;

$w_{ind}$ = the weight applicable to the credit index 'ind' determined according to paragraph 11 of this Attachment;

$M_{ind}$ = the maturity in years of 'ind' CDS index purchased protection.

$$D_{ind} = \frac{1 - e^{-0.05\mathrm{M_{ind}}}}{0.05\mathrm{M_{ind}}}$$

$B_{ind}$ = the notional amount of 'ind' CDS index purchased protection used to hedge CVA risk.

An ADI that has more than one purchased single-name CDS hedge referencing counterparty i used to hedge CVA risk, must replace $M_i^{hedge} D_i^{hedge} B_i$ in the formula above by the sum over all such hedges:

$$M_i^{hedge} D_i^{hedge} B_i = \sum_j M_{ij}^{hedge} D_{ij}^{hedge} B_{ij}$$

where each hedge is denoted by the subscript j = 1, 2, 3,..

An ADI that has purchased more than one CDS index protection to hedge CVA risk replace $M_{ind} D_{ind} B_{ind}$ in the formula above by the sum over all such hedges:

$$M_{ind} D_{ind} B_{ind} = \sum_j M_{ind,j} D_{ind,j} B_{ind,j}$$

where each hedge is denoted by the subscript j = 1, 2, 3,..

11. For the purposes of calculating the CVA risk capital charge, an ADI must determine the weight for a counterparty or credit index by its credit rating grade according to Table 9 below.

Table 9: CVA risk capital formula weights

| Long term credit rating grade | Weight (%) |
|---|---|
| 1 | 0.7 |
| 2 | 0.8 |
| 3 | 1.0 |
| 4 or unrated | 2.0 |
| 5 | 3.0 |
| 6 | 10.0 |

12. An ADI may include eligible CVA hedges in the calculation of the CVA risk capital charge as set out in paragraph 10(c) of this Attachment subject to the following conditions:

    (a) to qualify as an eligible CVA hedge, the hedge must be transacted with an external counterparty, used for the purpose of mitigating CVA risk, and managed as such;

    (b) the only CDS hedges that may qualify as eligible CVA hedges are single-name CDS (including sovereign CDS), single-name contingent CDS, other equivalent hedging instruments referencing the counterparty directly, and index CDS. A tranched or nth-to-default CDS may not be treated as an eligible CVA hedge; and

    (c) an instrument for which the associated payment depends on cross-default (such as a related entity hedged with a reference entity CDS and CDS triggers) may not be treated as an eligible CVA hedge. If restructuring is not included in the CDS contract then the proportion of that CDS hedge that may be treated as an eligible CVA hedge is as in accordance with the rules regarding specific risk offsetting set out in Attachment D of APS 116.

13. Other types of counterparty risk hedges must not be reflected within the calculation of the CVA risk capital charge, and these other hedges must be treated as any other instrument in the ADI's inventory for Regulatory Capital purposes. Eligible CVA hedges that are included in the CVA risk capital charge must not be included in the ADI's market risk capital charge calculation under APS 116.

14. If a counterparty is also a constituent of an index on which a CDS is used for hedging CCR, the notional amount attributable to that single name (as per its reference entity weight) may, with APRA's approval, be subtracted from the index CDS notional amount and treated as a single name eligible CVA hedge of the individual counterparty with maturity based on the maturity of the index.

## Central counterparties (CCP)

15. This section outlines the various types of exposures to central counterparties arising from OTC derivatives, exchanged-traded derivatives transactions and SFTs, and the capital and risk management practice requirements applied to them. Exposures arising from the settlement of cash transactions (equities, fixed income, spot FX and spot commodities) are not subject to this treatment.

16. An ADI that is either a clearing member or a client of a clearing member for an exchange-traded derivatives transaction for which the clearing member-to-client leg is conducted under a bilateral agreement, must treat the transaction as an OTC derivative for the purpose of calculating capital requirements.

17. APRA may require an ADI to hold additional capital against its exposures to a QCCP if an external assessment has found material shortcomings in the regulation of the QCCP and the CCP regulator has not since publicly addressed the issues identified.

18. Where the CCP is in a jurisdiction that does not have a CCP regulator applying the CPSS-IOSCO *Principles for Financial Market Infrastructures* to the CCP, APRA may make a determination as to whether the CCP meets the definition of a qualifying CCP.

19. An ADI must establish a process for monitoring by, and regular reporting to, senior management 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. An ADI must also establish a process for regular reporting of material exposures to CCPs to the appropriate committee of the Board.

## Requirements for exposures arising from transactions cleared through a qualifying CCP

20. An ADI acting as a clearing member to a QCCP (i.e. direct access) must hold capital for trade exposures and default fund exposure. An ADI acting as a client of a clearing member to a QCCP (i.e. indirect access) must hold capital for its trade-related exposures, and (if applicable) CVA risk. A clearing member ADI that guarantees the trade for its client must hold capital for all of the above exposures. The risk-weight applied to the trade-related exposures depends on whether and to what extent the conditions set out in paragraph 26 of this Attachment are met. The risk-weights are summarised in paragraphs 24 to 27 of this Attachment.

21. An ADI that has trade exposures to a QCCP must, as part of its capital management planning, assess whether the level of capital held against trade exposures to a QCCP adequately relates to the inherent risks of those transactions. In particular, the ADI must consider if (i) its dealings with the QCCP give rise to higher risk exposures; or (ii) it is dealing with a CCP where, given the context of that ADI's dealings, it is unclear that the CCP meets the QCCP definition in paragraph 10(u) of this Prudential Standard.

22. An ADI that is a clearing member must, as part of its capital management planning, assess through appropriate scenario analysis and stress testing whether the level of capital held against exposures to a QCCP adequately relates to the inherent risks of those transactions. This assessment must 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 the event that the clearing member defaults or becomes insolvent.

23. Within three months of a CCP ceasing to qualify as a QCCP, an ADI must apply risk-weights for the bilateral counterparties to its trades with the CCP. Until that time, unless APRA otherwise requires, the trades with a former QCCP may be treated as though they continue to be with a QCCP.

*Trade exposure capital calculations for clearing members*

24. An ADI that is acting as a clearing member of a QCCP, for its own purposes, must apply a risk-weight of two per cent to its trade exposures to the QCCP,[37] calculated in respect of its OTC derivatives, exchange-traded derivatives and SFT transactions with the QCCP. Where the clearing member offers clearing services to clients, the two per cent risk-weight also applies to the clearing member's trade exposure to the QCCP 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 QCCP defaults. Furthermore, to the extent that the rules referenced in Attachment J of APS 112[38] include the term 'master netting agreement', this term is to be read as including any 'netting agreement' that provides legally enforceable rights of set-off. If an ADI cannot demonstrate that the netting agreements meet the rules set out in Attachment J of APS 112, it must treat each single transaction as a netting set of its own for the calculation of trade exposure.

25. For capital purposes, a clearing member ADI must treat its CEA to its clients as bilateral trades, and calculate a CVA risk capital charge. However, to recognise the shorter close-out period for cleared transactions, the clearing member ADI may apply a multiplication factor to its CEA to these exposures according to the following scale:

Table 10: Multiplication factor for clearing members' exposures to their clients

| **Margin period of risk**[39] | **Multiplication factor** |
|---|---|
| 5 days or less | 0.71 |
| 6 days | 0.77 |

37 Except that, where for the component of trade exposures represented by posted collateral (initial margin) is held in a bankruptcy remote manner in accordance with paragraph 27(a)(ii) of this Attachment, collateral is subject to a zero risk-weight in accordance with that provision.

38 For the purposes of calculating trade exposure to both qualifying and non-qualifying CCPs, Attachment J of APS 112 applies also to exchange-traded derivative transactions.

39 Margin period of risk is the estimated time period from the last exchange of collateral covering a netting set of transactions with a defaulting counterparty until that counterpart is closed out and the resulting market risk is re-hedged.

| | |
|---|---|
| 7 days | 0.84 |
| 8 days | 0.89 |
| 9 days | 0.95 |
| 10 days | 1.00 |

*Trade exposure capital calculations for clients of clearing members*

26. An ADI that:

(a) clears through a QCCP indirectly as a client of a clearing member acting as a financial intermediary (i.e. the clearing member completes an offsetting transaction with the QCCP); or

(b) enters into a transaction with the QCCP, with the clearing member guaranteeing its performance

must treat its exposure to the clearing member or QCCP, respectively, as if it were a clearing member's exposure to the QCCP and risk-weight its exposure according to paragraph 24 when the following conditions are met:

(i) the offsetting transactions are identified by the QCCP as client transactions, and the collateral to support the offsetting transactions is held in a manner that prevents any losses to the client ADI due to either the default or insolvency of the clearing member, or the default or insolvency of the clearing member's other clients. Additionally, upon request, the client ADI must provide to APRA an independent, legal opinion, in writing, that proves the validity of this condition in the presence of any legal challenges under relevant laws;

(ii) collateral supporting the offsetting transactions is held in a manner that prevents any losses to the client ADI due to the joint default or insolvency of the clearing member and any of its other clients. Additionally, on request, the client ADI must provide to APRA an independent legal opinion, in writing, that proves the validity of these conditions in the presence of any legal challenges under relevant laws; and

(iii) in case the clearing member defaults or becomes insolvent, the relevant laws, rules, contractual or administrative arrangements provide that offsetting transactions are highly likely to continue to be indirectly transacted through the QCCP, or by the QCCP. In such circumstances, the client positions and collateral with the QCCP will be transferred at market value unless the client ADI requests closing out the position at market value.

If only conditions (i) and (iii) are satisfied, a risk-weight of four per cent must be applied to the ADI's exposure to the clearing member. In any other cases, the ADI must, for capital purposes, treat its exposure to the clearing member as bilateral trades, including the calculation of the CVA risk capital charge.

*Capital treatment of posted collateral*

27. An ADI (either as a clearing member or a client of a clearing member) that has posted collateral must risk-weight those assets in accordance with the risk-weights that otherwise apply under APS 112 or APS 113 as applicable, if the collateral is held in the banking book, or under APS 116, if the collateral is held in the trading book, regardless of the fact that such assets have been posted as collateral. In addition, an ADI must apply risk-weights to posted collateral reflecting the circumstances under which the collateral is held and the creditworthiness of the entity holding the collateral. In particular:

    (a) an ADI that is a clearing member:

        (i) must apply a two per cent risk-weight to posted collateral held by the QCCP where that collateral is included in the definition of trade exposures to a QCCP and not held in a bankruptcy-remote manner; and

        (ii) may apply a zero risk-weight to posted collateral (including cash, securities and excess initial and variation margin) held by a custodian where that collateral is bankruptcy remote from the QCCP;

    (b) an ADI that is a client of a clearing member:

        (i) may apply a zero risk-weight to posted collateral held by a custodian where the collateral is bankruptcy remote from the QCCP, the clearing member, and the clearing member's other clients;

        (ii) must apply a two per cent risk-weight to posted collateral held by the QCCP if the collateral is not bankruptcy remote from the QCCP, and all conditions (i), (ii) and (iii) in paragraph 26 of this Attachment are all satisfied; and

        (iii) must apply a four per cent risk-weight to posted collateral held by the QCCP if the collateral is not bankruptcy remote from the QCCP, and only conditions (i) and (iii) in paragraph 26 of this Attachment are all satisfied.

*Capital requirements for default fund exposure to a QCCP*

28. Where a default fund is shared between products or types of businesses with settlement risk only and products or types of business that give rise to counterparty credit risk, all of the default fund contributions will receive the risk-weight determined according to the formula set out in paragraph 29 of this Attachment, without apportioning between different classes or types of 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 out in paragraph 29 of this Attachment must be calculated for each specific product giving rise to counterparty credit risk.

29. The risk-weighted assets (RWA) for the clearing member ADI's default fund exposure is calculated by the following formula:

$$\min\left\{2\%\times\left(TE\right)+1250\%\times DF_{\text{ADI}},20\%\times\left(TE\right)\right\}-2\%\times\left(TE\right)$$

where

$DF_{\text{ADI}}$ = the ADI's pre-funded contribution to the QCCP's default fund

$TE$ = the trade exposure to the QCCP calculated according to paragraph 24 of this Attachment.

## Capital requirements for exposures to a non-qualifying CCP

30. An ADI must risk-weight its trade exposures to a non-qualifying CCP in accordance with Attachment A of APS 112,[40] and calculate a CVA risk capital charge in respect of those exposures.

31. An ADI that is a clearing member of a non-qualifying CCP must calculate a capital requirement in respect of its default fund contributions to that CCP according to the following formula:

$$RWA = 1250\% \times DF$$

where:

$RWA =$ the ADI's risk-weighted assets in respect of its default fund exposure to the CCP

$DF =$ the ADI's pre-funded contribution to the default fund of the CCP, plus a proportion, to be specified by APRA, of the ADI's unfunded contributions that are liable to be paid should the CCP so require.

[40] An ADI is to apply the standardised risk-weighting methodology of APS 112 regardless of whether the ADI has approval to use the internal ratings-based approach to credit risk under APS 113.