

MAS NOTICE 637 (AMENDMENT NO. 3) 2021

Issued on: 2 December 2021

RISK BASED CAPITAL ADEQUACY REQUIREMENTS FOR BANKS INCORPORATED IN SINGAPORE

Introduction

- 1 This document reflects amendments made to MAS Notice 637 to –
 - (a) incorporate edits to the standardised approach to credit risk and the internal ratings-based approach (“IRBA”) relating to the insertion of a new charge to be held by the Housing and Development Board (“HDB”) under the Prime Location Public Housing (“PLH”) model;
 - (b) incorporate clarifications by the Basel Committee on Banking Supervision to the standardised approach for counterparty credit risk (“SA-CCR”) framework and the revised capital requirements for bank exposures to central counterparties (“CCPs”);
 - (c) implement revisions to the IRBA application process; and
 - (d) implement technical revisions to the disclosure framework.
- 2 For presentational purposes, the amendments in this document are compared with the version of MAS Notice 637 issued on 14 September 2012, as last revised on 17 August 2021 (the “Original Notice”).
- 3 This document shall be interpreted as follows:
 - (a) Text which is coloured and struck through represent deletions;
 - (b) Text which is coloured and underlined represent insertions;
 - (c) Text which is highlighted in yellow are annotations to describe changes, and will not appear in the published untracked version of MAS Notice 637. For instance, where amendments have been made to a selected paragraph of an Annex, only that paragraph will be reflected in this document, prefaced with the following explanatory text in yellow highlights:
[Amendments to paragraph xx];
 - (d) Any inserted portions are inserted in numerical or alphabetical order (as appropriate) with the existing text in the Original Notice;
 - (e) Any inserted definitions in the Glossary at Annex 2A are inserted in alphabetical order with the existing definitions in the Original Notice;

- (f) Portions of the Original Notice which are not reflected in this document are unchanged.

4 The amendments reflected in this document shall take effect from 1 January 2022, except where indicated otherwise.

5 The table below provides an overview of the amendments corresponding to the various effective dates:

Effective date	Amendments
31 December 2021	<ul style="list-style-type: none">• Insertion of the definition of “HDB” in Part II and amendments to paragraphs 7.3.1, 7.3.29A and 7.4.31 in Part VII, relating to the insertion of a new charge to be held by HDB under the PLH model (referred to in paragraph 1(a) above)
1 January 2022	<ul style="list-style-type: none">• Amendments to Parts II, IV, VII, XI and XII, which relate to amendments to the SA-CCR framework and the revised capital requirements for bank exposures to CCPs (referred to in paragraph 1(b) above)• Amendments to Parts II and VII, which relate to revisions to the IRBA application process (referred to in paragraph 1(c) above)• Amendments to Part XI, which relate to technical revisions to the disclosure framework (referred to in paragraph 1(d) above)

6 In the event of discrepancies between the amendments in this document and the published version of MAS Notice 637 revised on 2 December 2021 (version with effect from 31 December 2021, and version with effect from 1 January 2022, as the case may be), the published versions of MAS Notice 637 shall prevail. This document is to be used for reference only.

Amendments to Part II: Definitions

Insertions of and amendments to the following definitions in Annex 2A

CCR or counterparty credit risk means the risk that the counterparty to a transaction or portfolio of transactions could default before the final settlement of the transaction's cash flows where there is a bilateral risk of loss, giving rise to an economic loss to the Reporting Bank if the transaction or portfolio of transactions with the counterparty has a positive economic value at the time of default, and vice versa;

[MAS Notice 637 (Amendment No. 3) 2021]

clearing member means a member of, or a direct participant in, a CCP that is entitled to enter into a transaction with the CCP, regardless of whether it enters into trades with a CCP for its own hedging, investment or speculative purposes or whether it also enters into trades as a financial intermediary between the CCP and other market participants. Where a CCP has a link to a second CCP, that second CCP shall be treated as a clearing member of the CCP^{AB};

[MAS Notice 637 (Amendment) 2012]

client sub-account in relation to a clearing member, means an account for –
(a) transactions that it enters into with a client acting as a financial intermediary between the client and the CCP;¹⁷ and
(b) collateral posted by such a client, that is held separately from the clearing member's proprietary transactions and collateral;

[MAS Notice 637 (Amendment) 2016]

[MAS Notice 637 (Amendment No. 3) 2021]

current exposure means the larger of zero, or the current market value of a transaction or portfolio of transactions within a netting set with a counterparty that would be lost upon the immediate default of the counterparty, assuming no recovery on the value of those transactions in a bankruptcy or insolvency;

[MAS Notice 637 (Amendment No. 3) 2021]

^{AB} ~~[Deleted by MAS Notice 637 (Amendment No. 3) 2021] Whether the second CCP's collateral contribution to the first CCP is treated as initial margin or a default fund contribution shall depend upon the legal arrangement between the CCPs. A Reporting Bank shall consult the Authority to determine whether such collateral contribution by the second CCP to the first CCP should be treated as an initial margin or default fund contribution. The Authority intends to consult and communicate with other financial services regulatory authorities via the "frequently asked questions" process of the Basel Committee on Banking Supervision to ensure consistency.~~

~~[MAS Notice 637 (Amendment) 2012]~~

~~[MAS Notice 637 (Amendment No. 3) 2017]~~

CVA loss means CVA which has already been recognised by a Reporting Bank as an incurred write-down;

[MAS Notice 637 (Amendment No. 3) 2021]

HDB means the Housing and Development Board established under section 3 of the Housing and Development Act (Cap. 129);

[MAS Notice 637 (Amendment No. 3) 2021]

ICA or independent collateral amount means the amount of collateral other than variation margin posted by the counterparty that the Reporting Bank may seize upon default of the counterparty, which does not change in response to the value of transactions it secures, and includes the Independent Amount parameter defined in standard industry documentation^D;

[MAS Notice 637 (Amendment) 2016]

indirect client means a financial institution which is not a direct clearing member, but provides clearing services as a client of a clearing member or a client of a client of a clearing member;

[MAS Notice 637 (Amendment No. 3) 2021]

margin agreement means any contractual agreement or any terms and conditions of an agreement, where one counterparty has to supply collateral variation margin to a second counterparty when an exposure of that second counterparty to the first counterparty exceeds a specified level;

[MAS Notice 637 (Amendment No. 3) 2021]

margin threshold means the largest amount of an exposure that remains outstanding until one party has the right to call for collateral variation margin;

[MAS Notice 637 (Amendment No. 3) 2021]

^D For example, the 1992 (Multicurrency-Cross Border) Master Agreement and the 2002 Master Agreement published by the International Swaps & Derivatives Association, Inc. (ISDA Master Agreement). The ISDA Master Agreement includes the ISDA Credit Support Annexes-CSA: the 1994 Credit Support Annex (Security Interest – New York Law), or, as applicable, the 1995 Credit Support Annex (Transfer – English Law) and the 1995 Credit Support Deed (Security Interest – English Law).

[MAS Notice 637 (Amendment No. 3) 2021]

multi-level client structure means any structure in which clearing services are provided by a financial institution which is an indirect client~~not a direct clearing member, but is itself a client of a clearing member or a client of a client of a clearing member;~~

[MAS Notice 637 (Amendment) 2016]
[MAS Notice 637 (Amendment No. 3) 2021]

netting agreement means any agreement which effects netting between two counterparties, or any other arrangement to effect netting, which does not contain a walkaway clause¹;

NICA or net independent collateral amount^{1A} means the amount of segregated and unsegregated collateral posted by the counterparty to the Reporting Bank, less the unsegregated collateral^{1B} posted by the Reporting Bank to the counterparty, and in relation to the Independent Amount defined in standard industry documentation, takes into account the differential of Independent Amount required for the Reporting Bank minus Independent Amount required for the counterparty^{1A};

[MAS Notice 637 (Amendment) 2016]
[MAS Notice 637 (Amendment No. 3) 2021]

operational risk means the risk of loss resulting from –
(a) inadequate or failed internal processes;
(b) actions or omissions of persons;
(c) systems; or
(d) external events,
including legal risk^{1DB}, but does not include strategic or reputational risk;

[MAS Notice 637 (Amendment) 2016]

¹ ~~[Deleted by MAS Notice 637 (Amendment No. 3) 2021] "Walkaway clause" means any provision which permits a party to a netting agreement that is not in default to make limited payments or no payments at all, to a defaulting party under the same netting agreement, even if the party that is in default is a net creditor under the netting agreement.~~

^{1A} NICA represents the amount of collateral that a Reporting Bank may use to offset its exposure on the default of the counterparty.

[MAS Notice 637 (Amendment No. 3) 2021]

^{1B} To avoid doubt, the collateral posted by the Reporting Bank to the counterparty, held in a segregated and bankruptcy remote manner, is not deducted in the calculation of NICA.

[MAS Notice 637 (Amendment No. 3) 2021]

^{1CA} ~~[Deleted by MAS Notice 637 (Amendment No. 3) 2021] For the avoidance of doubt, NICA represents the amount of collateral that a Reporting Bank may use to offset its exposure on the default of the counterparty, and does not include collateral that the Reporting Bank has posted to a segregated, bankruptcy remote account.~~

^{1DB} Legal risk includes exposures to fines, penalties, or punitive damages resulting from criminal prosecution, regulatory or supervisory actions, as well as such damages or other sums payable resulting from civil claims or settlements.

[MAS Notice 637 (Amendment No. 3) 2021]

repo-style transaction

means a transaction comprising any of the following:

(a) a repo;

(b) a reverse repo;

(c) a securities lending transaction;

(d) a securities borrowing transaction,

where the value of the transaction depends on market valuation and the transaction is often subject to margin agreements;

[MAS Notice 637 (Amendment No. 3) 2021]

supervisory validation

~~means the process by which the Authority examines the readiness of a Reporting Bank for adopting the IRBA or the AMA, as the case may be, for the purpose of deciding whether the Reporting Bank may begin a recognised parallel run;~~

means –

(a) in the case of a Reporting Bank intending to adopt the IRBA, the process by which the Authority examines the readiness of the Reporting Bank for adopting the IRBA, for the purpose of deciding whether to approve the Reporting Bank's application to adopt the IRBA; and

(b) in the case of a Reporting Bank intending to adopt the AMA, the process by which the Authority examines the readiness of the Reporting Bank for adopting the AMA, for the purpose of deciding whether the Reporting Bank may begin a recognised parallel run;

[MAS Notice 637 (Amendment No. 3) 2021]

walkaway clause

means any provision which permits a party to a netting agreement that is not in default to make limited payments or no payments at all, to a defaulting party under the same netting agreement, even if the party that is in default is a net creditor under the netting agreement;

[MAS Notice 637 (Amendment No. 3) 2021]

CALCULATION OF THE LEVERAGE RATIO

Section 2: EM

Alternative Treatment for Derivative Transactions

Amendments to paragraphs 2.14A to 2.14D

2.14A A Reporting Bank may elect to calculate its exposure measure in respect of all its derivative transactions in accordance with paragraphs 2.14C to 2.14S of this Annex, instead of paragraphs 2.7 to 2.14 of this Annex, –

~~(a) for the period up to 31 December 2021, if the Reporting Bank elects pursuant to paragraph 5.3 of Annex 7O to comply with Annex 7O of this Notice prior to, or at the same time when, the Reporting Bank elects to calculate its exposure measure in respect of all its derivative transactions in accordance with paragraphs 2.14C to 2.14S of this Annex; or~~

~~(b) on or after 1 January 2022.~~

[MAS Notice 637 (Amendment) 2021]

[MAS Notice 637 (Amendment No. 3) 2021]

2.14B When a Reporting Bank elects to calculate its exposure measure in respect of all its derivative transactions in accordance with paragraphs 2.14C to 2.14S of this Annex, the Reporting Bank shall give the Authority notice in writing of the date from which the Reporting Bank elects to calculate its exposure measure in respect of all its derivative transactions in accordance with paragraphs 2.14C to 2.14S of this Annex (the "election date for LR"), no less than 30 days before the election date for LR. ~~For the avoidance of doubt, the election date for LR may be the same or after the election date in paragraph 5.3 of Annex 7O.~~

[MAS Notice 637 (Amendment) 2021]

[MAS Notice 637 (Amendment No. 3) 2021]

2.14C Subject to paragraphs 2.14L and 2.14M of this Annex, for a derivative transaction that is not covered by a qualifying bilateral netting agreement, a Reporting Bank shall calculate the exposure measure in respect of the derivative transaction using the following formula:

$$\text{exposure measure} = \alpha \times (RC + PFE)$$

where –

(a) $\alpha = 1.4$;

(b) RC = the replacement cost of the derivative transaction calculated using the following formula:

$$RC = \max (V - CVM_r + CVM_p, 0)$$

where –

- (i) V = the current market value of the derivative transaction;
 - (ii) CVM_r = the cash variation margin received by the Reporting Bank in relation to the derivative transaction that meets the conditions set out in paragraph 2.14H of this Annex and that has not reduced V under the Accounting Standards; and
 - (iii) CVM_p = the cash variation margin provided by the Reporting Bank in relation to the derivative transaction that meets the conditions set out in paragraph 2.14H of this Annex; and
- (c) PFE = the potential future exposure of the derivative transaction calculated as –

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

in accordance with Sections 3 and 4 of Annex 70, except that the value of the multiplier referred to in paragraph 3.1(b) of Annex 70 shall be fixed at one. To avoid doubt, a Reporting Bank may calculate the maturity factor used in the calculation of $AddOn^{aggregate}$, in accordance with paragraph 3.18 of Annex 70 (i.e. the Reporting Bank may recognise the PFE-reducing effect from the regular exchange of variation margin).

[MAS Notice 637 (Amendment) 2021]

[MAS Notice 637 (Amendment No. 3) 2021]

2.14D Subject to paragraphs 2.14L and 2.14M of this Annex, for a set of derivative transactions that is covered by a qualifying bilateral netting agreement, a Reporting Bank shall calculate the exposure measure in respect of the netting set using the following formula:

$$exposure\ measure = alpha \times (RC + PFE)$$

where –

- (a) $alpha = 1.4$;
- (b) RC = the replacement cost of the derivative transactions in the netting set calculated using the following formula –

$$RC = \max (V - CVM_r + CVM_p, 0)$$

where –

- (i) V = the current market value of the derivative transactions in the netting set;
- (ii) CVM_r = the cash variation margin received by the Reporting Bank in relation to the derivative transactions in the netting set that meets

the conditions set out in paragraph 2.14H of this Annex and that has not reduced V under the Accounting Standards; and

- (iii) CVM_p = the cash variation margin provided by the Reporting Bank in relation to the derivative transactions in the netting set that meets the conditions set out in paragraph 2.14H of this Annex; and
- (c) PFE = the potential future exposure of the derivative transactions in the netting set calculated as –

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

in accordance with Sections 3 and 4 of Annex 7O, except that the value of the multiplier referred to in paragraph 3.1(b) of Annex 7O shall be fixed at one. To avoid doubt, a Reporting Bank may calculate the maturity factor used in the calculation of $AddOn^{aggregate}$, in accordance with paragraph 3.18 of Annex 7O (i.e. the Reporting Bank may recognise the PFE-reducing effect from the regular exchange of variation margin).

[MAS Notice 637 (Amendment) 2021]

[MAS Notice 637 (Amendment No. 3) 2021]

Amendments to paragraph 2.14M

2.14M Where a Reporting Bank is a higher level client in a multi-level client structure, and offers clearing services to a client for a derivative transaction that is cleared by a qualifying CCP, the Reporting Bank may exclude the exposure measure in respect of the resulting CCP trade exposure to a clearing member or to an entity that is a higher-level client to the Reporting Bank, in the calculation of the exposure measure in respect of the derivative transaction if all of the following conditions are met:

- (a) the Reporting Bank shall confirm that the offsetting transaction in respect of the derivative transaction is identified by the qualifying CCP as a higher level client transaction;
- (b) the Reporting Bank shall obtain a written independent legal opinion^{29AB} which concludes that –
 - (i) the collateral is held by the qualifying CCP or the clearing member, or both, to support the offsetting transaction in respect of the derivative transaction, under one or more arrangements that prevent any losses to the Reporting Bank due to –
 - (A) the default or insolvency of the clearing member;

^{29AB} While a Reporting Bank may use either an in-house or external legal counsel for the purpose of obtaining a written independent legal opinion, it should consider whether or not an in-house counsel opinion is appropriate. In the case of an in-house legal counsel, the Reporting Bank should ensure that the in-house legal counsel is independent of the parties originating transactions related to the Reporting Bank's client clearing services.

- (B) the default or insolvency of other clients of the clearing member; ~~or~~ and
- (C) the joint default or insolvency of the clearing member and any of its other clients;
- (ii) under the arrangements in sub-paragraph (b)(i), upon the insolvency of the clearing member, there is no legal impediment (other than the need to obtain a court order to which the client is entitled) to the transfer of the collateral belonging to clients of the defaulting clearing member to the qualifying CCP, to one or more other surviving clearing members, or to clients or their respective nominees; and
- (iii) the arrangements in sub-paragraph (b)(i) are binding on all relevant parties and legally enforceable in all relevant jurisdictions within the meaning of paragraph 3.1(a) of Annex 7N;
- (c) the Reporting Bank shall ensure that the arrangements in sub-paragraph (b)(i) do not cease to be enforceable and there continues to be no legal impediment under sub-paragraph (b)(ii);
- (d) the Reporting Bank shall ensure that the laws, regulation, rules, contractual arrangements and administrative arrangements, that govern the derivative transaction between the Reporting Bank and the clearing member or higher level client, as the case may be, ~~shall~~ –
 - (i) provide that the offsetting transaction in respect of the derivative transaction with a clearing member that has defaulted, or an insolvent clearing member, will continue to be indirectly transacted through the qualifying CCP, or by the qualifying CCP, should the clearing member default or become insolvent; and
 - (ii) allow for the Reporting Bank's positions and collateral placed with the qualifying CCP to be transferred at market value unless the Reporting Bank requests to close out at market value; and
- (e) the Reporting Bank shall not be obligated, based on any contractual arrangements with its client, to reimburse the client for any losses suffered in the event that the qualifying CCP or the clearing member defaults.

[MAS Notice 637 (Amendment) 2021]
[MAS Notice 637 (Amendment No. 3) 2021]

Amendments to paragraph 2.140

2.140 Where a Reporting Bank offers clearing services for derivative transactions to a client for derivative transactions that are cleared by a qualifying CCP or a CCP that is not a qualifying CCP, whether by acting as a clearing member of the CCP or by acting as a higher level client within a multi-level client structure, the Reporting Bank shall determine the exposure measure in respect of its exposure to the client as E calculated in accordance

with paragraphs 1.1 to 1.1B and 2.3 to 4.24A.4 of Annex 7O, subject to paragraph 2.14P of this Annex.

[MAS Notice 637 (Amendment) 2021]
[MAS Notice 637 (Amendment No. 3) 2021]

Amendments to Part VII: Credit Risk

Division 2: Measurement of Exposures

Amendments to Sub-division 6 of Division 2

Sub-division 6: Measurement of E or EAD for Pre-settlement Counterparty Exposures Arising from OTC Derivative Transactions, Exchange-traded Derivative Transactions and Long Settlement Transactions, Other than Transactions Covered by a Qualifying Cross-Product Netting Agreement

[MAS Notice 637 (Amendment No. 3) 2021]

7.2.20 Subject to paragraph 7.2.20A, for each OTC derivative transaction, exchange-traded derivative transaction or long settlement transaction which is not covered by a qualifying cross-product netting agreement, a Reporting Bank shall calculate E or EAD, whichever is applicable, for the pre-settlement counterparty exposure arising from that OTC derivative transaction, exchange-traded derivative transaction or long settlement transaction using one of the following methods:

- (a) the SA-CCR set out in Annex 7O; or
- (b) the CCR internal models method set out in Annex 7Q.

[MAS Notice 637 (Amendment No. 2) 2014]

[MAS Notice 637 (Amendment) 2016]

[MAS Notice 637 (Amendment No. 3) 2021]

7.2.20A For each counterparty, the Reporting Bank shall ensure that the E or EAD, whichever is applicable, for each OTC derivative transaction calculated in accordance with paragraph 7.2.20, shall be is the greater of zero and the difference between the sum of E or EAD, whichever is applicable, across all netting sets with the counterparty and the CVA for that counterparty which has already been recognised by the Reporting Bank as an incurred write-down (i.e. a CVA loss). The Reporting Bank shall calculate the CVA loss without taking into account any offsetting debit valuation adjustments which have been deducted in the calculation of CET1 Capital in accordance with paragraph 6.1.3(g) ~~of Part VI~~^{114AA}. For the purposes of calculating the CVA risk capital requirement in Annex 7AI, a Reporting Bank shall not reduce EAD by CVA losses. Where a Reporting Bank uses a combination of the SA-CCR and CCR internal models method to calculate its E or EAD, whichever is applicable, to a single counterparty, the Reporting Bank shall allocate separately (with no double-counting) collateral posted by the counterparty, for the

^{114AA} [Deleted by MAS Notice 637 (Amendment No. 3) 2021] Where a Reporting Bank uses a combination of the SA-CCR and CCR internal models method to calculate its E or EAD, whichever is applicable, to a single counterparty, the Reporting Bank shall allocate separately (with no double-counting) collateral posted by the counterparty, for the purposes of calculating its E or EAD, whichever is applicable, under each of the respective methods.

[MAS Notice 637 (Amendment) 2016]

[MAS Notice 637 (Amendment No. 2) 2017]

purposes of calculating its E or EAD, whichever is applicable, under each of the respective methods.

[MAS Notice 637 (Amendment No. 2) 2014]

[MAS Notice 637 (Amendment No. 2) 2017]

[MAS Notice 637 (Amendment No. 3) 2021]

7.2.21 A Reporting Bank shall not use the CCR internal models method unless it has received the approval of the Authority to do so.

[MAS Notice 637 (Amendment) 2016]

7.2.21A Regardless of the method used by a Reporting Bank for calculating E or EAD, whichever is applicable, for the pre-settlement counterparty exposure arising from OTC derivative transactions, exchange-traded derivative transactions and SFTs, a Reporting Bank may determine E or EAD, whichever is applicable, for the pre-settlement counterparty exposure arising from long settlement transactions using either of the methods set out in paragraph 7.2.20.

[MAS Notice 637 (Amendment No. 2) 2014]

[MAS Notice 637 (Amendment) 2016]

[MAS Notice 637 (Amendment No. 3) 2021]

7.2.21B ~~[Deleted by MAS Notice 637 (Amendment No. 3) 2021] A Reporting Bank which has taken eligible collateral that is not under a qualifying bilateral netting agreement and margin agreement for any OTC derivative transaction may recognise the effect of such collateral in accordance with paragraphs 2.9 to 2.13 of Annex 7Q.~~

~~[MAS Notice 637 (Amendment) 2016]~~

7.2.21C To avoid doubt, in calculating E for a securitisation exposure which arises from a derivative transaction other than a credit risk derivative transaction, a Reporting Bank shall calculate E in accordance with this Sub-division.

[MAS Notice 637 (Amendment No. 3) 2021]

Division 3: SA(CR)

Sub-division 1: Categorisation of SA(CR) Exposures

Amendments to paragraph 7.3.1

[Effective from 31 December 2021]

7.3.1 A Reporting Bank shall categorise any SA(CR) exposure that is not past due for more than 90 days into one of the following asset classes under SA(CR):

- (a) cash items, which consist of –
 - (i) cash and cash equivalents^{120A};
 - (ii) gold bullion held in the vaults of the Reporting Bank or on an allocated basis in the vaults of another entity to the extent that it is backed by gold bullion liabilities; and
 - (iii) all receivable funds arising from transactions that are settled on a DvP basis which are outstanding up to and including the 4th business day after the settlement date¹²¹;
 - (b) central government and central bank asset class, which consists of any SA(CR) exposure to a central government or central bank;
 - (c) PSE asset class, which consists of any SA(CR) exposure to a PSE;
 - (d) MDB asset class, which consists of any SA(CR) exposure to an MDB, the Bank for International Settlements, the International Monetary Fund, the European Central Bank or the European Community;
 - (e) bank asset class, which consists of any SA(CR) exposure to a banking institution;
 - (f) corporate asset class, which consists of any SA(CR) exposure to any corporation, partnership, limited liability partnership, sole proprietorship or trustee in respect of a trust, other than exposures categorised in subparagraphs (a) to (e), (g) and (h)¹²²;
- [MAS Notice 637 (Amendment) 2012]
- (g) regulatory retail asset class, which consists of any SA(CR) exposure meeting all of the following conditions^{122A}:
 - (i) the exposure is to an individual, a group of individuals, or a small business;

^{120A} Cash equivalents refer to cheques, drafts and other items drawn on other banking institutions that are either payable immediately upon presentation or that are in the process of collection.

¹²¹ This includes transactions settled on a payment-versus-payment basis.

¹²² For avoidance of doubt, an SA(CR) exposure to a securities firm or an insurance entity shall be categorised within the corporate asset class.

^{122A} Securities (such as bonds and equities), whether listed or not, and any SA(CR) exposure that meets the conditions to be categorised within the residential mortgage asset class, are excluded from this asset class.

- (ii) the exposure takes the form of any of the following:
 - (A) revolving credit and lines of credit, including credit cards and overdrafts;
 - (B) personal term loans and leases, including instalment loans, vehicle loans and leases, student and educational loans, and personal finance; or
 - (C) small business credit facilities and commitments;
 - (iii) the Reporting Bank shall demonstrate to the satisfaction of the Authority that the exposure is one of a sufficient number of exposures^{122B} with similar characteristics and that the portfolio is sufficiently diversified such that the risks associated with such lending are reduced; and
 - (iv) the total exposure¹²³ to any obligor^{123A} or group of obligors¹²⁴ is not more than \$2 million;
- (h) residential mortgage asset class, which consists of any SA(CR) exposure meeting all of the following conditions:
- (i) the exposure is to an individual or a group of individuals, or if the exposure is to an entity other than an individual, the Reporting Bank is able to demonstrate to the satisfaction of the Authority, that it has robust processes to ascertain that the exposure is structured to replicate the risk profile of an exposure to an individual or a group of individuals and that it is able to identify and manage the legal risks that arise in such structures;
 - (ii) the exposure is –
 - (a) secured against a first charge held by the Reporting Bank for a loan; or

^{122B} A factor to be considered is whether any total exposure to any obligor or group of obligors is not more than 0.2% of the total exposures of the regulatory retail asset class. A Reporting Bank shall exclude exposures that are past due for more than 90 days for the assessment of diversification.

[MAS Notice 637 (Amendment No. 2) 2014]

¹²³ This includes any past due exposure to the same obligor or group of obligors. For the avoidance of doubt, this is gross of any CRM.

^{123A} Where an exposure to an individual exceeds \$2 million, a Reporting Bank shall categorise the exposure under the other exposures asset class.

¹²⁴ The basis of aggregation for small business exposures of not more than \$2 million that are treated as retail exposures shall be (a) the definition of an obligor group used by the Reporting Bank for its risk management purposes, with the proviso that exposures to related corporations and associates of the obligor, and the sole proprietors or partners in any of the entities in the obligor group are to be included in the aggregation; and (b) based on all banking group entities that fall within the scope of application of this Notice. However, the Reporting Bank may dis-aggregate certain exposures if the dis-aggregated obligors have sufficient financial resources to fully service their liabilities and do not need to depend on any other entity within the obligor group for financial assistance in meeting their liabilities. A simplistic dis-aggregation based on product type alone would not be acceptable.

- (b) secured against a junior charge held by the Reporting Bank for a loan where all the senior charges ranking above the junior charge in question are held by one or more of the following persons:

(i) the Reporting Bank; ~~or~~

(ii) CPF;

(iii) HDB, ~~as the case may be,~~

in respect of –

- (A) of a completed residential property;
- (B) of an uncompleted residential property in Singapore; or
- (C) of an uncompleted residential property in a jurisdiction approved by the Authority on an exceptional basis^{124A};

[MAS Notice 637 (Amendment) 2013]

[MAS Notice 637 (Amendment No. 3) 2021]

- (iii) the exposure is not rated as a classified loan under MAS Notice 612; and
 - (iv) the exposure is not to a corporation, partnership, sole proprietorship or trustee in respect of a trust where such corporation, partnership, sole proprietorship or trust is engaged in residential building, development or management;
- (i) CRE asset class, which consists of any SA(CR) exposure meeting all of the following conditions^{124B}:
- (i) the exposure is to an individual or a group of individuals, a corporation, partnership, limited liability partnership, sole proprietorship or trustee in respect of a trust; and

[MAS Notice 637 (Amendment) 2012]

- (ii) the exposure is secured by CRE; or
- (j) other exposures asset class, which consists of any SA(CR) exposure which does not fall within any of the categories in sub-paragraphs (a) to (i)

^{124A} Where an exposure is secured by RRE and meets the conditions in sub-paragraphs 7.3.1(h)(i) and 7.3.1(h)(iv), but not sub-paragraph 7.3.1(h)(ii), the Reporting Bank shall categorise the exposure under the other exposures asset class.

^{124B} For the avoidance of doubt, a Reporting Bank shall categorise exposures which fit the description in both sub-paragraphs (f) and (i), or in both sub-paragraphs (g) and (i), under sub-paragraph (i) only.

[MAS Notice 637 (Amendment) 2012]

above. This includes any exposure to the residual value of leased assets calculated in accordance with paragraph 7.2.4A.

Sub-division 3: Risk Weights

Residential Mortgage Asset Class

Amendments to paragraph 7.3.29A

[Effective from 31 December 2021]

7.3.29A Where the SA(CR) exposure is secured against a junior charge, the numerator of the LTV ratio referred to in Table 7-9 shall be adjusted to include all senior charges ranking above the junior charge in question, including senior charges held by ~~the CPF, or HDB, or both.~~

[MAS Notice 637 (Amendment) 2013]
[MAS Notice 637 (Amendment No. 3) 2021]

Division 4: IRBA

Sub-division 1: Application to Adopt the IRBA

Amendments to paragraphs 7.4.1 to 7.4.13A, and insertion of paragraphs 7.4.2A, 7.4.6A, 7.4.6B, 7.4.10B and 7.4.10C

7.4.1 A Reporting Bank which intends to adopt the IRBA for any class of exposures, shall apply in writing to the Authority for approval to do so. —

- ~~(a) if the Reporting Bank is adopting the F-IRBA or IRBA for the IRBA retail asset class, no less than 18 months prior to its IRBA adoption date; and~~
- ~~(b) if the Reporting Bank is adopting the A-IRBA, no less than 18 months prior to its A-IRBA adoption date;~~

~~or such other shorter time as may be permitted by the Authority after taking into account the IRBA rollout plan of the Reporting Bank.~~

[MAS Notice 637 (Amendment No. 3) 2021]

7.4.2 Subject to paragraph 7.4.2A, a Reporting Bank shall ensure that the application to adopt the IRBA for a class of exposures pursuant to paragraph 7.4.1 ~~above shall~~ contains all of the following:

- (a) a written confirmation from the executive officer responsible for risk management in the Reporting Bank that –
 - (i) the use of rating systems and –

¹²⁵ [This footnote has been intentionally left blank.]

- (A) in the case of ~~IRBA~~ exposures for which the Reporting Bank is applying to adopt using the F-IRBA to calculate the credit risk-weighted exposure amounts, internal estimates of PD; and
- (B) in the case of ~~IRBA~~ exposures for which the Reporting Bank is applying to adopt using the IRBA for the IRBA retail asset class or A-IRBA to calculate the credit risk-weighted exposure amounts, internal estimates of PD, LGD and EAD,

form an integral part of the systems and processes of the Reporting Bank for managing credit risk;

- (ii) the Reporting Bank has —

(A) a process for managing the potential variability of its credit RWA over the business cycles of the respective industries and geographic regions which it is exposed to, to help ensure ongoing compliance with the minimum capital requirements specified in this Notice and bank-specific capital requirements set by the Authority pursuant to section 10(3) of the Banking Act~~;~~;

(B) ~~The Reporting Bank shall have~~ carefully considered the implications of its IRBA systems on credit risk assessment and capital management~~;~~ and

(C) If in the case where the Reporting Bank uses IRBA systems that would result in changes in its assessment of credit risk over a business cycle, ~~it shall ensure~~ d that its process for capital management is designed to address potential capital shortfalls in economic downturns;

- (iii) the Reporting Bank has a process for continually determining the suitability of its credit risk management strategy and framework as well as IRBA systems, taking into account such regulations, Notices and guidelines that the Authority may issue from time to time, including Annex 7AB ~~of this Part~~¹⁴⁴ hereto;
- (iv) the Reporting Bank has systems, processes and controls to calculate credit RWA under the IRBA accurately and that those systems, processes and controls are subject to internal audit at least on an annual basis;
- (v) the Reporting Bank has a process to calculate the credit risk-weighted exposure amount for any IRBA exposure using the SA(CR) or the requirements under MAS Notice 637 in force immediately

¹⁴⁴ Annex 7AB ~~of this Part~~ sets out the requirements of the Authority for a Reporting Bank adopting the IRBA.

[MAS Notice 637 (Amendment No. 3) 2021]

before 1 Jan 2008, within a three-month period~~a reasonable timeframe~~¹⁴⁵ if required by the Authority; and

(vi) the IRBA rollout plan of the Reporting Bank is in accordance with Annex 7AC~~of this Part~~¹⁴⁶;

(b) a written confirmation from the executive officer responsible for internal audit of the Reporting Bank that –

(i) he agrees with the confirmation by the executive officer responsible for risk management pursuant to sub-paragraph (a)~~above~~; and

(ii) the Reporting Bank has –

(A) been using its rating system for the class of exposures in a manner broadly in line with the minimum standards for use as set out in paragraph 2.7 of Annex 7AB for at least one year prior to the application;

(B) conducted an internal validation of the rating system referred to in sub-paragraph (b)(ii)(A), pursuant to Annex 7AB~~of this Part;~~ and

(C) has~~has~~ ascertained that it has the systems, processes and controls necessary for adopting the IRBA¹⁴⁷; and

(D) in areas where the internal validation referred to in sub-paragraph (b)(ii)(B) assesses that the Reporting Bank does not fully meet the requirements and guidelines of the Authority as set out in Annex 7AB, conducted self-assessments to identify the key shortcomings, developed comprehensive action plans to address them, and identified in the action plans the personnel responsible for specific actions, resource needs and a schedule for completion^{147A}; and

(c) a report on the latest internal validation conducted by the Reporting Bank prior to the application and any relevant supporting documentation relating to the adoption of the IRBA for the class of exposures. For the purposes of this paragraph, the internal validation report shall cover a

¹⁴⁵ ~~In general, the Authority would expect the Reporting Bank to be able to calculate the credit risk-weighted exposure amount for any IRBA exposure using the SA(CR) or MAS Notice 637 in force immediately before 1 Jan 2008 within a three-month period. [Deleted by MAS Notice 637 (Amendment No. 3) 2021]~~

¹⁴⁶ ~~Unless the Reporting Bank demonstrates to the satisfaction of the Authority that it faces exigencies that are material and relevant. [Deleted by MAS Notice 637 (Amendment No. 3) 2021]~~

¹⁴⁷ ~~In areas where a Reporting Bank does not fully meet the expectations of the Authority, it shall conduct self-assessments to identify the key shortcomings and develop comprehensive action plans to address them before supervisory validation begins. Such action plans shall include identifying the personnel responsible for specific actions, resource needs and a schedule for completion. [Deleted by MAS Notice 637 (Amendment No. 3) 2021]~~

^{147A} The Reporting Bank should implement the measures described in its action plans within a reasonable timeframe. The Authority will take into consideration shortcomings identified and the Reporting Bank's action plans to address them, including the schedule for completion, in its planning of the supervisory validation.

[MAS Notice 637 (Amendment No. 3) 2021]

duration of at least one year during which the Reporting Bank shall have used its rating system for the class of exposures in a manner broadly in line with the minimum standards for use as set out in paragraph 2.7 of Annex 7AB.

[MAS Notice 637 (Amendment No. 3) 2021]

7.4.2A Notwithstanding paragraph 7.4.2(a)(vi), the Reporting Bank need not provide a written confirmation from the executive officer responsible for risk management in the Reporting Bank, that the IRBA rollout plan of the Reporting Bank is in accordance with Annex 7AC if the Reporting Bank is able to demonstrate to the satisfaction of the Authority that it faces exigencies that are material and relevant.

[MAS Notice 637 (Amendment No. 3) 2021]

Sub-division 2:—Recognised Parallel Run Submission of Information for Supervisory Validation Prior to IRBA Adoption

[MAS Notice 637 (Amendment No. 3) 2021]

7.4.3 A Reporting Bank intending to adopt the IRBA shall conduct a parallel run recognised by the Authority prior to its IRBA adoption date.—[Deleted by MAS Notice 637 (Amendment No. 3) 2021]

7.4.4 The Authority will recognise a parallel run only if it is based on IRBA systems assessed by the Authority to be sufficiently satisfactory for the parallel run.¹⁴⁸—The Authority may grant approval for a Reporting Bank to commence a recognised parallel run subject to such conditions or restrictions as the Authority may impose.—[Deleted by MAS Notice 637 (Amendment No. 3) 2021]

7.4.5 A Reporting Bank intending to adopt the F-IRBA, the A-IRBA or the IRBA for the IRBA retail asset class shall conduct a recognised parallel run immediately prior to its IRBA adoption date for at least one year or such other shorter period as the Authority may approve. A Reporting Bank which has adopted F-IRBA and intends to adopt the A-IRBA shall conduct a recognised parallel run immediately prior to its A-IRBA adoption date, for at least one year or such other shorter period as the Authority may approve.—[Deleted by MAS Notice 637 (Amendment No. 3) 2021]

7.4.6 During the recognised parallel run, the A-Reporting Bank shall calculate its CET1 CAR, Tier 1 CAR and Total CAR using both the IRBA and the prevailing capital requirements that are applicable to the Reporting Bank under this Notice at both the Solo and Group levels (referred to as “parallel calculations” in this Sub-division) as at the end of each quarter for the latest four consecutive quarters before its intended IRBA adoption date (whether under MAS Notice 637 in force immediately before 1 Jan 2008 or under this Notice). To avoid doubt, where the Reporting Bank revises its intended IRBA adoption date,

¹⁴⁸ Where there are outstanding issues, the Reporting Bank shall satisfy the Authority that it would be able to address them within a reasonable time so that the results of the parallel run would remain meaningful.
[Deleted by MAS Notice 637 (Amendment No. 3) 2021]

the Reporting Bank shall perform the parallel calculations for the latest four consecutive quarters prior to the revised intended IRBA adoption date.

[MAS Notice 637 (Amendment No. 2) 2014]

[MAS Notice 637 (Amendment No. 3) 2021]

7.4.6A Notwithstanding paragraph 7.4.6, the Authority may require a Reporting Bank to submit additional parallel calculations as at other dates for other time periods, where necessary to ascertain the readiness of a Reporting Bank to adopt the IRBA.

[MAS Notice 637 (Amendment No. 3) 2021]

7.4.6B To avoid doubt, for the purposes of paragraphs 7.4.6 and 7.4.6A, the date on which a parallel calculation is based may precede the date on which the IRBA application was submitted to the Authority.

[MAS Notice 637 (Amendment No. 3) 2021]

7.4.7 A Reporting Bank shall submit to the Authority ~~the CET1 CAR, Tier 1 CAR and Total CAR~~ all parallel calculations referred to in paragraphs 7.4.6 and 7.4.6A, before its intended IRBA adoption date, and within such timelines as specified by the Authority. ~~under paragraph 7.4.6 at both the Solo and Group levels as at the end of each quarter during the recognised parallel run, no later than the 30th of the following month. To avoid doubt, where the Reporting Bank revises its intended IRBA adoption date, the Reporting Bank shall submit to the Authority all parallel calculations, before the revised intended IRBA adoption date, and within such timelines as specified by the Authority.~~

[MAS Notice 637 (Amendment No. 2) 2014]

[MAS Notice 637 (Amendment No. 3) 2021]

7.4.8 If a Reporting Bank becomes aware ~~after the submission of its IRBA application but before receiving approval to adopt the IRBA,~~ that the confirmations made pursuant to paragraph 7.4.2(a) and (b) ~~above~~ are no longer valid ~~or that it no longer complies with any of the conditions or restrictions imposed by the Authority pursuant to paragraph 7.4.4 above,~~ it shall –

- (a) inform the Authority as soon as practicable ~~and in any case no later than five business days from becoming aware;~~
- (b) assess the effect of the situation in terms of the risk posed to the Reporting Bank;
- (c) prepare a plan to rectify the situation and inform the Authority of its plan as soon as practicable; and
- (d) undertake prompt corrective action within a reasonable time in accordance with the plan prepared pursuant to sub-paragraph (c) ~~above.~~

[MAS Notice 637 (Amendment No. 3) 2021]

7.4.9 Where there are findings arising from the Authority's supervisory validation which a Reporting Bank is required to address before its intended IRBA adoption date that could impact the parallel calculations previously submitted by a Reporting Bank under paragraph 7.4.7, the Authority may require the Reporting Bank, after it has addressed such findings, to recalculate and resubmit the parallel calculations previously submitted, or to submit additional parallel calculations, before its intended IRBA adoption date. During the recognised parallel run, the Authority will continue to evaluate the readiness of the Reporting Bank to adopt the IRBA in order to reach a decision, towards the end of the recognised parallel run, on whether to grant or withhold approval for the Reporting Bank to adopt the IRBA. The Authority may withhold such approval if, during the recognised parallel run, it becomes aware of information that materially affects its assessment of the readiness of the Reporting Bank to adopt the IRBA or if any outstanding issue identified prior to the start of the recognised parallel run has not been addressed. The Authority may also require the Reporting Bank to extend the parallel run to allow more time for the Reporting Bank to take corrective actions. To avoid doubt, where the Reporting Bank revises its intended IRBA adoption date, the Reporting Bank shall, if required by the Authority, recalculate and resubmit the parallel calculations previously submitted, or submit additional parallel calculations, before the revised intended IRBA adoption date.

[MAS Notice 637 (Amendment No. 3) 2021]

Sub-division 3: Approval to Adopt the IRBA

7.4.10 The Authority may grant approval for a Reporting Bank to adopt the IRBA for a class of exposures, subject to such conditions or restrictions as the Authority may impose.

[MAS Notice 637 (Amendment No. 3) 2021]

7.4.10A A Reporting Bank shall comply with the public disclosure requirements set out in Part XI of this Notice to be eligible to adopt the IRBA.

7.4.10B As part of its approval process, the Authority will consider whether –

- (a) the Reporting Bank's IRBA systems comply with the requirements and meet the guidelines set out in Annex 7AB;
- (b) the risk management process and system of the Reporting Bank are adequate to support the IRBA; and
- (c) the Reporting Bank has addressed to the Authority's satisfaction all findings arising from the Authority's supervisory validation before its intended IRBA adoption date.

[MAS Notice 637 (Amendment No. 3) 2021]

7.4.10C The Authority may withhold approval for the Reporting Bank to adopt the IRBA for a class of exposures if –

- (a) during its supervisory validation, it becomes aware of information that materially affects its assessment of the readiness of the Reporting Bank to adopt the IRBA for the class of exposures; or
- (b) any outstanding finding identified during its supervisory validation that the Reporting Bank is required to address before its intended IRBA adoption date has not been addressed to the satisfaction of the Authority.

[MAS Notice 637 (Amendment No. 3) 2021]

7.4.11 If a Reporting Bank becomes aware after it has received approval to adopt the IRBA for a class of exposures that any of the confirmations made pursuant to paragraph 7.4.2(a) and (b) ~~above~~ are no longer valid, ~~or~~ that it no longer complies with any of the conditions or restrictions imposed by the Authority pursuant to paragraph 7.4.10 or that it no longer complies with paragraph 7.4.10A ~~above~~, it shall –

- (a) inform the Authority as soon as practicable and in any case no later than five business days from becoming aware;
- (b) assess the effect of the situation in terms of the risk posed to the Reporting Bank;
- (c) prepare a plan to rectify the situation, inform and seek approval from the Authority of its plan as soon as practicable; and
- (d) undertake prompt corrective action within a reasonable time in accordance with the plan prepared pursuant to sub-paragraph (c) ~~above~~.

[MAS Notice 637 (Amendment No. 3) 2021]

7.4.12 The Authority may suspend or revoke its approval for a Reporting Bank to adopt the IRBA for a class of exposures, subject the Reporting Bank to higher bank-specific capital requirements pursuant to section 10(3) of the Banking Act, or take any other actions if –

- (a) the Reporting Bank has not ~~complied with~~ fulfilled any of the conditions or restrictions imposed by the Authority pursuant to paragraph 7.4.10;
- (aa) the Reporting Bank has not complied with paragraph 7.4.10A;
- (b) the Reporting Bank fails to comply with paragraph 7.4.11;
- (c) the Authority subsequently becomes aware that the Reporting Bank has furnished information that is false or misleading in a material manner to the Authority in connection with its application for approval to adopt the IRBA;
- (d) the Reporting Bank has not executed its IRBA rollout in accordance with the rollout parameters in Annex 7AC ~~of this Part~~;

- (e) the Authority is not satisfied that the Reporting Bank is in compliance with the requirements in Annex 7AB ~~of this Part~~, or that the risk management process and system of the Reporting Bank are adequate to support the IRBA.

[MAS Notice 637 (Amendment No. 3) 2021]

7.4.13 A Reporting Bank shall inform the Authority no less than 3 months prior to the expected date of implementation of any significant change to its IRBA systems subsequent to ~~the commencement of a recognised parallel run or~~ the Authority granting approval for the Reporting Bank to adopt the IRBA for a class of exposures, unless the Authority has directed that the Reporting Bank seeks prior approval for any such change.

[MAS Notice 637 (Amendment No. 3) 2021]

7.4.13A ~~A Reporting Bank that has adopted the IRBA is expected to continue to adopt the IRBA. If a the Reporting Bank that has adopted the IRBA intends to adopt the SA(CR) or F-IRBA instead, it may be allowed to do so only in exceptional circumstances, subject to the approval of the Authority such as divestiture of a large fraction of the Reporting Bank's credit-related business, subject to the approval by the Authority~~^{148A}.

[MAS Notice 637 (Amendment No. 3) 2021]

Sub-division 7: Calculation of K for IRBA Wholesale Asset Class

Loss Given Default, LGD

Amendments to paragraph 7.4.31

[Effective from 31 December 2021]

7.4.31 A Reporting Bank shall not recognise the effects of CRM of a junior charge on an eligible CRE or eligible RRE unless –

- (a) all the senior charges ranking above the junior charge in question are held by one or more of the following persons:
- (i) the Reporting Bank; ~~or~~
 - (ii) CPF;
 - (iii) HDB, ~~as the case may be~~;
- (b) the Reporting Bank deducts all senior~~the first~~ charges¹⁶¹ which –
- (i) are held by CPF, or HDB, or both; and

^{148A} Where a Reporting Bank has adopted the IRBA, it is expected to continue to adopt the IRBA. The Reporting Bank may be allowed to adopt the SA(CR) or F-IRBA in instances such as a divestiture of a large fraction of the Reporting Bank's credit-related business, subject to the approval by the Authority.

[MAS Notice 637 (Amendment No. 3) 2021]

¹⁶¹ This includes principal and accrued interest.

(ii) rank above the junior charge in question, held by the CPF

if any, from the value of the eligible RRE, ~~in the case where CPF holds the first charge;~~ and

- (c) there is no doubt that the junior charge is legally enforceable and constitutes an efficient credit risk mitigant.

[MAS Notice 637 (Amendment) 2013]

[MAS Notice 637 (Amendment No. 3) 2021]

METHODS AND HAIRCUTS FOR RECOGNISING COLLATERAL

Section 1: Calculation of E*, EAD* or EAD_{adj}

Amendments to paragraph 1.4

1.4 Subject to paragraphs 1.5 to 1.7 of this Annex, a Reporting Bank shall determine H_E, H_C, H_S and H_{FX} referred to in paragraphs 1.1 to 1.3 of this Annex~~above~~, in accordance with the standard supervisory haircuts in Section 2 of this Annex, applying the minimum holding period for the transaction set out in paragraphs 4.1 to 4.1B of this Annex.

[MAS Notice 637 (Amendment No. 3) 2021]

Section 4: Minimum Holding Periods, Remargining or Revaluation Conditions

Amendments to paragraph 4.1, Table 7J-2, and insertion of paragraphs 4.1A and 4.1B and Table 7J-3

4.1 Subject to paragraphs 4.1A and 4.1B of this Annex, the ~~The~~ following table sets out the minimum holding periods and remargining or revaluation conditions for different types of transactions:

[MAS Notice 637 (Amendment No. 2) 2014]

[MAS Notice 637 (Amendment No. 3) 2021]

Table 7J-2 - Minimum Holding Periods and Remargining/Revaluation Conditions

Transaction type	Minimum holding period ^{273A}	Remargining/Revaluation Condition
<u>Repo-style transactions</u> Repos, reverse repos, securities lending or securities borrowing transactions	5 business days	daily remargining
<u>Other capital market transactions, i.e. OTC derivative transactions, and margin lending transactions, and commodities lending and commodities borrowing transactions</u>	10 business days	daily remargining
Secured lending	20 business days	daily revaluation

^{273A} [Deleted by MAS Notice 637 (Amendment No. 3) 2021]~~Where the Reporting Bank has a transaction or netting set which meets the criteria set out in paragraph 6.5(a) of Annex 7Q, the minimum holding period shall be the margin period of risk that applies under that paragraph.~~

<u>Netting set comprising repo-style transactions and other capital market transactions</u>	<u>10 business days</u>	<u>daily remargining</u>
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[MAS Notice 637 (Amendment) 2012]

[MAS Notice 637 (Amendment No. 3) 2021]

4.1A A Reporting Bank shall use higher minimum holding periods as specified in the cases set out in Table 7J-3 –

Table 7J-3 - Minimum Holding Periods applicable in specific cases

<u>Type of netting set for repo-style and other capital market transactions</u>	<u>Minimum holding period</u>
<u>Netting set where the number of transactions exceeds 5,000 at any point during a quarter</u>	<u>20 business days (for the following quarter)</u>
<u>Netting set containing one or more transactions involving illiquid collateral, determined in the context of stressed market conditions^{273B}. This does not apply in the case of any transitional illiquidity of collateral and OTC derivative transactions that reference a new benchmark rate, for up to one year after the discontinuation of an old benchmark rate.</u> <u>Stressed market conditions are characterised by the absence of continuously active markets where a counterparty would, within two or fewer days, obtain multiple price quotations that would not move the market or represent a price reflecting a market discount.</u>	<u>20 business days</u>

[MAS Notice 637 (Amendment No. 3) 2021]

4.1B In relation to any quarter ("relevant quarter"), where a Reporting Bank has experienced more than two margin call disputes on a netting set over the two quarters immediately preceding the relevant quarter that have lasted longer than the Reporting Bank's estimate of the margin period of risk, the Reporting Bank shall use a minimum holding period that is twice the level that would apply under paragraph 4.1 or 4.1A of this Annex for the relevant quarter and next quarter after the relevant quarter.

[MAS Notice 637 (Amendment No. 3) 2021]

^{273B} Examples of situations where transactions are deemed illiquid for this purpose include, but are not limited to, transactions that are not marked daily, and transactions that are subject to specific accounting treatment for valuation purposes (e.g. transactions referencing securities whose fair value is determined by models with inputs that are not observed in the market).

[MAS Notice 637 (Amendment No. 3) 2021]

QUALIFYING BILATERAL NETTING AGREEMENTS AND QUALIFYING CROSS-PRODUCT NETTING AGREEMENTS

Section 2: Scope of Application

Amendments to paragraph 2.1

2.1 A qualifying bilateral netting agreement involves a group of transactions between a Reporting Bank and a counterparty containing transactions in only one of the following product categories (collectively "Transactions"):

- (a) OTC derivative transaction or long settlement transaction;
- (b) repo, reverse repo, securities or commodities lending transaction and securities or commodities borrowing transaction; ~~or~~
- (c) margin lending transaction.

[MAS Notice 637 (Amendment No. 3) 2021]

Section 3: Requirements for Netting Agreements

Amendments to paragraph 3.1

3.1 A Reporting Bank shall –

- (a) obtain a written independent legal opinion^{278A} that satisfies the requirements set out in paragraphs 4.1 to 4.3 of this Annex confirming that the netting agreement is valid, effective and enforceable for each of the following jurisdictions:
 - (i) the jurisdiction in which the counterparty is incorporated or established;
 - (ii) if a foreign branch of the Reporting Bank or the counterparty has entered or will be entering into the Transaction, the jurisdiction in which the branch of the Reporting Bank or the counterparty, as the case may be, is located;
 - (iii) the jurisdiction whose law governs the netting agreement; and

^{278A} While a Reporting Bank may use either an in-house or external legal counsel for the purpose of obtaining a written independent legal opinion, it should consider whether or not an in-house counsel opinion is appropriate. In the case of an in-house legal counsel, such a party should be independent of the parties originating transactions covered by the netting agreement.

[MAS Notice 637 (Amendment) 2019]

[MAS Notice 637 (Amendment No. 2) 2020]

- (iv) the jurisdiction whose law governs any Transaction subject to the netting agreement if different from sub-paragraph (iii),

(referred to as “relevant jurisdictions” in this Annex) and which satisfies the requirements set out in Section 4 of this Annex;

- (b) in relation to a netting agreement containing ~~€~~Transactions in paragraph 2.1(b) and (c) of this Annex ~~above~~, ensure that -

- (i) the netting agreement -

- (A) provides the non-defaulting party the right to terminate and close out in a timely manner all ~~€~~Transactions upon the occurrence of a termination event as defined in the netting agreement, including the default or insolvency of the defaulting party; and

- (B) allows for the prompt liquidation or set-off of collateral upon the event of default; and

- (ii) where the netting agreement covers ~~€~~Transactions in both the banking book and trading book, -

- (A) the ~~€~~Transactions are marked-to-market daily^{278B}; and

- (B) the collateral in the transactions are recognised as eligible financial collateral in the banking book in accordance with Annex 7F ~~of Part VII~~; and

- (c) provide to the Authority the information and documents set out in paragraphs 3.2 and 3.3 of this Annex.

[MAS Notice 637 (Amendment) 2019]

[MAS Notice 637 (Amendment No. 3) 2021]

Section 4: Legal Opinions obtained for purposes of paragraph 3.1(a)

Amendments to paragraphs 4.2 and 4.3

4.2 ~~[Deleted by MAS Notice 637 (Amendment No. 3) 2021]The legal opinion shall confirm that in an event of default as defined under the netting agreement, including liquidation, bankruptcy or other similar circumstances of either the counterparty or the Reporting Bank, the courts and administrative authorities²⁸¹ of the relevant jurisdiction will find that the claims and obligations of the Reporting Bank pursuant to the relevant~~

^{278B} ~~[Deleted by MAS Notice 637 (Amendment No. 3) 2021]The holding period for the haircuts will depend on the frequency of margining.~~

~~[MAS Notice 637 (Amendment) 2019]~~

²⁸¹ ~~[Deleted by MAS Notice 637 (Amendment No. 3) 2021]This includes a court-appointed administrator and an administrator appointed by a regulatory authority.~~

~~Transactions would be limited to a net sum calculated in accordance with the netting agreement under the law of the relevant jurisdiction.~~

~~[MAS Notice 637 (Amendment) 2019]~~

4.3 ~~In addition, t~~The Reporting Bank shall ensure that the legal opinion, at a minimum shall²⁸² ~~--~~

[MAS Notice 637 (Amendment) 2019]

[MAS Notice 637 (Amendment No. 3) 2021]

(aa) confirms that in an event of default as defined under the netting agreement, including liquidation, bankruptcy or other similar circumstances of either the counterparty or the Reporting Bank, the courts and administrative authorities^{282A} of the relevant jurisdiction will find that the claims and obligations of the Reporting Bank pursuant to the relevant Transactions would be limited to a net sum calculated in accordance with the netting agreement under the law of the relevant jurisdiction;

[MAS Notice 637 (Amendment No. 3) 2021]

(a) highlights the material clauses in the netting agreement that provide for the netting of Transactions ("material netting clauses");

[MAS Notice 637 (Amendment No. 3) 2021]

(b) confirms that the unenforceability or illegality of any clause (other than a material netting clause) in the netting agreement is unlikely to undermine the material netting clauses referred to in sub-paragraph (a)-~~above~~;

[MAS Notice 637 (Amendment No. 3) 2021]

(c) states the circumstances under which the netting agreement may be relied upon, including -

(i) the legal form of, or activities conducted by, the counterparty; and

(ii) whether certain counterparties^{282B} ~~(such as banks, insurance companies or local authorities)~~ may be subject to special rules relating to insolvency as a result of the legal form of, or activities conducted by, the counterparties;

[MAS Notice 637 (Amendment No. 3) 2021]

(d) states whether the netting or other default provisions in the netting agreement are enforceable or enforceable differently (and if so, the extent

²⁸² This is not intended to be an exhaustive list of all the matters that should be covered in a legal opinion obtained for the purposes of paragraph 3.1(a) of this Annex.

[MAS Notice 637 (Amendment No. 3) 2021]

^{282A} This includes a court-appointed administrator and an administrator appointed by a regulatory authority.

[MAS Notice 637 (Amendment No. 3) 2021]

^{282B} For example, banks, insurance companies, or local authorities.

[MAS Notice 637 (Amendment No. 3) 2021]

of the difference) in a non-liquidation event^{282C}, ~~such as administration, judicial management, receivership, voluntary arrangement and a scheme of arrangement;~~

[MAS Notice 637 (Amendment No. 3) 2021]

- (e) states to what extent, if at all, the netting needs to be reflected in the records of the counterparties in order for it to be valid, effective and enforceable;

[MAS Notice 637 (Amendment No. 3) 2021]

- (f) states whether a court or administrative authority in the jurisdiction covered by the legal opinion would uphold the rate chosen for the conversion of foreign currency obligations for the purpose of calculating the close-out amount and whether there are any statutory or other applicable rules that may affect this aspect of the netting agreement;

[MAS Notice 637 (Amendment No. 3) 2021]

- (g) states whether, under the law of the jurisdiction covered by the legal opinion, it is necessary for the enforceability of the netting that all Transactions be regarded as part of a single agreement, and if so, whether there is anything in the close-out methodology which may be held to be inconsistent with the treatment of all Transactions as part of a single agreement and the effect it may have on the netting;

[MAS Notice 637 (Amendment No. 3) 2021]

- (h) states whether there is any reason to believe that the netting agreement would be unenforceable because of the law of another jurisdiction;

[MAS Notice 637 (Amendment No. 3) 2021]

- (i) states whether there is any preference specified in the netting agreement for automatic rather than optional close-out, and if so, whether such preference would affect the enforceability of the netting agreement;

[MAS Notice 637 (Amendment No. 3) 2021]

- (j) states whether there are legal problems in exercising any discretion or flexibility provided for in the netting agreement, and if so, whether such problems affect the enforceability of the netting agreement; and

[MAS Notice 637 (Amendment No. 3) 2021]

^{282C} For example, administration, judicial management, receivership, voluntary arrangement, or scheme of arrangement.

- (k) if other clauses are added to a standard form agreement, confirms that such additional clauses do not throw any reasonable doubt or affect the overall validity, effectiveness or enforceability of the netting agreement.

[\[MAS Notice 637 \(Amendment No. 3\) 2021\]](#)

Amendments to paragraph 4.9

4.9 The Reporting Bank shall alert the Authority immediately when it becomes aware of any relevant jurisdiction that does not recognise netting or recognises netting only in a limited form (whether as to certain products, or with counterparties of certain legal forms or counterparties performing certain activities).

[\[MAS Notice 637 \(Amendment No. 3\) 2021\]](#)

STANDARDISED APPROACH FOR COUNTERPARTY CREDIT RISK (SA-CCR)

Section 1: Overview

1.1 Subject to Section 4 of this Annex, a Reporting Bank using the SA-CCR shall calculate E or EAD, whichever is applicable, for the pre-settlement counterparty exposure to a single counterparty arising from OTC derivative transactions or exchange-traded derivative transactions, or long settlement transactions²⁸⁴ separately for each margined and unmargined netting sets²⁸⁵ as follows:

$$E \text{ or } EAD = \alpha \times (RC + PFE)$$

where --

- (a) $\alpha = 1.4$;
- (b) RC = the replacement cost calculated in accordance with Section 2 of this Annex; and
- (c) PFE = the amount for potential future exposure calculated in accordance with Section 3 of this Annex.

[MAS Notice 637 (Amendment No. 3) 2021]

1.1A A Reporting Bank may set E or EAD, whichever is applicable, to zero only for sold options that are not under a qualifying bilateral netting agreement and margin agreement.

[MAS Notice 637 (Amendment No. 3) 2021]

1.1B A Reporting Bank that is a protection seller may cap E or EAD, whichever is applicable, to the amount of unpaid premia for credit derivatives that are not under a qualifying bilateral netting agreement and margin agreement. A Reporting Bank that is a protection seller may remove credit derivatives that are under a qualifying bilateral netting agreement from the netting set and treat them as individual unmargined transactions in order to apply the cap.

[MAS Notice 637 (Amendment No. 3) 2021]

1.2 A Reporting Bank shall calculate RC and PFE differently for margined and unmargined netting sets in accordance with Sections 2 to 4 of this Annex. A Reporting

²⁸⁴ ~~A Reporting Bank shall calculate the pre-settlement counterparty exposure arising from a long settlement transaction using the SA-CCR if the Reporting Bank does not have approval to apply the CCR internal models method. In such a case, this Annex shall be read with reference to a long settlement transaction. [Deleted by MAS Notice 637 (Amendment No. 3) 2021]~~

²⁸⁵ ~~The Reporting Bank may set E or EAD, whichever is applicable, to zero only for sold options that are not under a qualifying bilateral netting agreement and margin agreement. [Deleted by MAS Notice 637 (Amendment No. 3) 2021]~~

Bank ~~may~~ shall cap the E or EAD, whichever is applicable, for a margined netting set, at the E or EAD, whichever is applicable of the same netting set, calculated based on the formulas for unmargined transactions.

[MAS Notice 637 (Amendment No. 3) 2021]

1.3 If the Authority is not satisfied that the use of the SA-CCR by a Reporting Bank captures the risk inherent in the Reporting Bank's transactions (as could be the case with structured and more complex OTC derivative transactions), the Authority may require the Reporting Bank to apply the SA-CCR on a transaction-by-transaction basis (i.e. with no recognition of netting).

[MAS Notice 637 (Amendment No. 3) 2021]

1.4 For the purposes of this Annex, "derivative transactions" or "derivatives" include long settlement transactions.

[MAS Notice 637 (Amendment No. 3) 2021]

Section 2: Replacement Cost

2.1 For unmargined transactions (that is, where variation margin is not exchanged, but collateral other than variation margin may be present), a Reporting Bank shall calculate RC for each netting set using the following formula:

$$RC = \max\{V - C; 0\}$$

where --

- (a) V is the current market value of the derivative transactions in the netting set; and
- (b) C is the haircut value of net collateral held, which in the case of unmargined transactions, is NICA adjusted by applying the standard supervisory haircuts in Annex 7J or own-estimate haircuts such that the value of non-cash collateral posted by the Reporting Bank to its counterparty is increased, and the value of non-cash collateral received by the Reporting Bank from its counterparty is decreased.

[MAS Notice 637 (Amendment No. 3) 2021]

2.1A For the purposes of paragraph 2.1 of this Annex, a Reporting Bank shall calculate the haircut applicable in the calculation of RC using the formula specified in paragraph 4.2 of Annex 7J, applying the minimum holding period for the transaction set out in paragraphs 4.1 to 4.1B of Annex 7J. In applying the formula, the Reporting Bank shall use the maturity of the longest transaction in the netting set as the value for N_R , capped at 250 days, in order to scale haircuts for unmargined transactions. The Reporting Bank shall cap the haircut calculated at 100%.

[MAS Notice 637 (Amendment No. 3) 2021]

2.2 A Reporting Bank shall treat bilateral transactions with a one-way margining agreement in favour of the Reporting Bank's counterparty (that is, where the Reporting Bank posts but does not collect ~~collateral under the margining agreement variation margin~~) as unmargined transactions.

[MAS Notice 637 (Amendment No. 3) 2021]

2.3 For margined transactions, a Reporting Bank shall calculate RC for each netting set using the following formula:

$$RC = \max\{V - C; TH + MTA - NICA; 0\}$$

where –

- (a) V is the current market value of the derivative transactions in the netting set;
- (b) C is the haircut value of net collateral held, including both variation margin and NICA adjusted by applying the standard supervisory haircuts in Annex 7J such that the value of non-cash collateral posted by the Reporting Bank to its counterparty is increased, and the value of non-cash collateral received by the Reporting Bank from its counterparty is decreased;
- (c) TH is the positive margin threshold where the counterparty would post collateral to the Reporting Bank;
- (d) MTA is the minimum transfer amount applicable to the counterparty; and
- (e) $NICA$ is the net independent collateral amount.

[MAS Notice 637 (Amendment No. 3) 2021]

2.4 For the purposes of paragraph 2.3 of this Annex, a Reporting Bank shall calculate the haircut applicable in the calculation of RC using the formula specified in paragraph 4.2 of Annex 7J, applying the minimum holding period for the transaction set out in paragraphs 4.1 to 4.1B of Annex 7J, and using the margin period of risk of the transaction as the value for N_{R+} .

[MAS Notice 637 (Amendment No. 3) 2021]

Section 3: Potential Future Exposure

3.1 A Reporting Bank shall calculate PFE using the following formula:

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

where –

- (a) $AddOn^{aggregate}$ is the aggregate add-on calculated in accordance with paragraph 3.2 of this Annex; and

(b) *multiplier* is calculated using the following formula:

$$multiplier = \min\left\{1; Floor + (1 - Floor) \times \exp\left(\frac{V - C}{2 \times (1 - Floor) \times AddOn^{aggregate}}\right)\right\}$$

where –

(i) $\exp(\dots)$ is the exponential function;

(ii) $Floor = 5\%$; and

(iii) V and C are calculated as set out in paragraph 2.1 of this Annex for unmargined netting sets or paragraph 2.3 of this Annex for margined netting sets, whichever is applicable.

[MAS Notice 637 (Amendment No. 3) 2021]

Aggregate add-on across asset classes

3.2 A Reporting Bank shall calculate the aggregate add-on, $AddOn^{aggregate}$, using the following formula:

$$AddOn^{aggregate} = \sum_{asset\ class} AddOn^{asset\ class}$$

where $AddOn^{asset\ class}$ is the respective add-on for each asset class calculated in accordance with paragraphs 3.8B9 to 3.14 of this Annex.²⁸⁶

[MAS Notice 637 (Amendment No. 3) 2021]

3.2A A Reporting Bank shall not recognise diversification benefits across asset classes when computing the aggregate add-on.

[MAS Notice 637 (Amendment No. 3) 2021]

Allocation of transactions to one or more asset classes

3.3 Subject to paragraph 3.5 of this Annex, a Reporting Bank shall allocate each transaction to one of the five asset classes (that is, interest rate, foreign exchange, credit, equity, commodity) on the basis of the primary risk factor of the transaction, defined by the transaction's underlying instrument²⁸⁷.

²⁸⁶ ~~For the avoidance of doubt, diversification benefits across asset classes are not recognised.~~ [Deleted by MAS Notice 637 (Amendment No. 3) 2021]

²⁸⁷ For example, an interest rate curve is the primary risk factor for an interest rate swap, a reference entity is the primary risk factor for a credit default swap, and a foreign exchange rate is the primary risk factor for a foreign exchange call option, etc.

[MAS Notice 637 (Amendment No. 3) 2021]

3.4 For more complex transactions that have more than one risk factor²⁸⁸, a Reporting Bank shall take sensitivities and volatilities of the underlying instrument into account for determining the primary risk factor.

3.5 The Authority may, ~~by notice in writing,~~ require a Reporting Bank to allocate more complex transactions to more than one asset class, resulting in the same position being included in multiple asset classes. Where the Authority requires a Reporting Bank to allocate a transaction to more than one asset class, the Reporting Bank shall determine appropriately the sign and supervisory delta adjustment of the relevant risk factor for each asset class to which the transaction is allocated.

[MAS Notice 637 (Amendment No. 3) 2021]

Hedging sets within each asset class

3.6 Subject to paragraphs 3.7 ~~to 3.8A and 3.8~~ of this Annex, a Reporting Bank shall group transactions into hedging sets within each asset class as follows:

- (a) ~~I~~nterest rate derivatives into separate hedging sets for each currency;
- (b) ~~F~~oreign exchange derivatives into separate hedging sets for each currency pair;
- (c) ~~C~~redit derivatives into a single hedging set;
- (d) ~~E~~quity derivatives into a single hedging set; ~~and~~
- (e) ~~C~~ommodity derivatives into four separate hedging sets according to the following categories of commodity derivatives:
 - (i) ~~E~~nergy;
 - (ii) ~~M~~etals;
 - (iii) ~~A~~gricultural commodities; ~~and~~
 - (iv) ~~O~~ther commodities.

[MAS Notice 637 (Amendment No. 3) 2021]

3.7 A Reporting Bank shall group transactions that reference the basis between two risk factors and are denominated in a single currency (that is, basis transactions) into separate hedging sets within the corresponding asset class²⁸⁹. ~~The Reporting Bank shall treat derivatives with two floating legs that are denominated in different currencies (such~~

²⁸⁸ For example, multi-asset ~~derivative transactions~~ or hybrid derivatives ~~transactions~~.

[MAS Notice 637 (Amendment No. 3) 2021]

²⁸⁹ ~~There is a separate hedging set for each pair of risk factors (that is, for each specific basis). Within the hedging set, long and short positions are determined with respect to the basis.~~ Examples of specific bases include three-month Libor versus six-month Libor, three-month Libor versus three-month T-Bill, one-month Libor versus OIS rate, ~~and~~ Brent Crude oil versus Henry Hub gas.

[MAS Notice 637 (Amendment No. 3) 2021]

~~as cross-currency swaps) as non-basis foreign exchange transactions, rather than basis transactions.~~

[MAS Notice 637 (Amendment No. 3) 2021]

3.7A A Reporting Bank shall have a separate hedging set for each pair of risk factors (that is, for each specific basis) and shall determine the long and short positions within the hedging set with respect to the basis.

[MAS Notice 637 (Amendment No. 3) 2021]

3.7B A Reporting Bank shall treat derivative transactions with two floating legs that are denominated in different currencies, including cross-currency swaps, as non-basis foreign exchange transactions, and not as basis transactions.

[MAS Notice 637 (Amendment No. 3) 2021]

3.8 A Reporting Bank shall group transactions that reference the volatility of a risk factor (that is, volatility transactions^{289A}) into separate hedging sets within the corresponding asset class. The Reporting Bank shall apply the same hedging set construction set out in paragraph 3.6 of this Annex to volatility hedging sets^{289B}, ~~for example, all equity volatility transactions form a single hedging set²⁹⁰.~~

[MAS Notice 637 (Amendment No. 3) 2021]

3.8A A Reporting Bank shall treat inflation derivative transactions in the same manner as interest rate derivative transactions and shall allocate inflation derivative transactions into separate hedging sets for each currency. To avoid doubt, a Reporting Bank shall form separate hedging sets for inflation derivative transactions and interest rate derivative transactions for the same currency.

[MAS Notice 637 (Amendment No. 3) 2021]

Add-on for interest rate derivatives

3.8B A Reporting Bank shall allocate the interest rate derivative transactions in each hedging set to one of the following three maturity buckets based on E_i of the derivative transaction as defined in paragraph 3.15(a)(i) of this Annex:

(a) Maturity Bucket 1, for transactions of E_i less than one year;

(b) Maturity Bucket 2, for transactions of E_i between one year and five years;

^{289A} Examples of volatility transactions include variance and volatility swaps, and options on realised or implied volatility.

[MAS Notice 637 (Amendment No. 3) 2021]

^{289B} For example, all equity volatility transactions form a single hedging set.

[MAS Notice 637 (Amendment No. 3) 2021]

²⁹⁰ ~~Examples of volatility transactions include variance and volatility swaps, options on realised or implied volatility. [Deleted by MAS Notice 637 (Amendment No. 3) 2021]~~

(c) Maturity Bucket 3, for transactions of E_i greater than five years.

[MAS Notice 637 (Amendment No. 3) 2021]

3.9 A Reporting Bank shall calculate the add-on for interest rate derivatives, $AddOn^{IR}$, as the sum of the add-ons for each hedging set of interest rate derivatives transacted with a counterparty in a netting set, as follows:

$$AddOn^{IR} = \sum_j AddOn_j^{IR}$$

where $AddOn_j^{IR}$ is the hedging set-level add-on for hedging set 'j' calculated using the following formula:

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

where ~~—~~

(a) SF_j^{IR} is the ~~interest rate~~ supervisory factor ~~specified in Table 7O-1 calculated in accordance with paragraph 3.19 of this Annex~~; and

(b) $EffectiveNotional_j^{IR}$ is the hedging set-level effective notional for hedging set 'j' calculated by aggregating across maturity buckets for each hedging set²⁹¹ using one of the following formulas:

(i) Formula 1:

$$EffectiveNotional_j^{IR} = \left[(D_{j1}^{IR})^2 + (D_{j2}^{IR})^2 + (D_{j3}^{IR})^2 + 1.4 \times D_{j1}^{IR} \times D_{j2}^{IR} + 1.4 \times D_{j2}^{IR} \times D_{j3}^{IR} + 0.6 \times D_{j1}^{IR} \times D_{j3}^{IR} \right]^{\frac{1}{2}}; \text{ or } \Delta$$

(ii) ~~If~~ In the case where the Reporting Bank chooses not to recognise offset across maturity buckets~~—~~ Formula 2:

$$EffectiveNotional_j^{IR} = |D_{j1}^{IR}| + |D_{j2}^{IR}| + |D_{j3}^{IR}|$$

where D_{jk}^{IR} is the effective notional for currency 'j' and maturity bucket 'k' calculated using the following formula:

²⁹¹ ~~[Deleted by MAS Notice 637 (Amendment No. 3) 2021] For the purpose of calculating the hedging set-level effective notional, the Reporting Bank shall allocate each transaction in the hedging set to one of the following three maturity buckets based on the end date of the transaction:~~
~~(a) Maturity Bucket 1, for transactions of E_i less than one year;~~
~~(b) Maturity Bucket 2, for transactions of E_i between one year and five years; or~~
~~(c) Maturity Bucket 3, for transactions of E_i greater than five years.~~

$$D_{jk}^{IR} = \sum_{i \in \{Currency_j, Maturity\ Bucket_k\}} \delta_i \times d_i^{IR} \times MF_i^{type}$$

where --

(A) $i \in \{Currency_j, Maturity\ Bucket_k\}$ refers to transactions ~~trades~~ of currency 'j' that belong to maturity bucket 'k';

(B) d_i^{IR} is the appropriate trade-level adjusted notional amount calculated in accordance with paragraphs 3.15(a), 3.15A and 3.16 of this Annex;

(C) δ_i is the appropriate supervisory delta adjustment calculated in accordance with paragraphs 3.17 to 3.17C of this Annex; and

(D) MF_i^{type} is the appropriate maturity factor calculated in accordance with paragraphs 3.18 to 3.18C of this Annex; ~~and~~

(E) $\delta_i \times d_i^{IR} \times MF_i^{type}$ is the effective notional of each derivative transaction in the hedging set.

[MAS Notice 637 (Amendment No. 3) 2021]

3.9A A Reporting Bank shall use the supervisory factor, SF_j^{IR} when calculating the add-on for inflation derivative transactions and aggregate the add-on for inflation derivative transactions with the add-on for interest rate derivative transactions, $AddOn^{IR}$.

[MAS Notice 637 (Amendment No. 3) 2021]

Add-on for foreign exchange derivatives

3.10 A Reporting Bank shall calculate the add-on for foreign exchange derivatives, $AddOn^{FX}$, as the sum of the add-ons for each hedging set of foreign exchange derivatives transacted with a counterparty in a netting set, as follows:

$$AddOn^{FX} = \sum_j AddOn_j^{FX}$$

where $AddOn_j^{FX}$ is the hedging set-level add-on for hedging set 'j' calculated using the following formula:

$$AddOn_j^{FX} = SF_j^{FX} \times |EffectiveNotional_j^{FX}|$$

where --

(a) SF_j^{FX} is the ~~foreign exchange~~ supervisory factor ~~specified in Table 70-1~~ calculated in accordance with paragraph 3.19 of this Annex; and

- (b) $EffectiveNotional_j^{FX}$ is the hedging set-level effective notional for hedging set 'j' calculated using the following formula:

$$Effective\ Notional_j^{FX} = \sum_{i \in Hedging\ Set_j} \delta_i \times d_i^{FX} \times MF_i^{type}$$

where --

- (i) $i \in Hedging\ Set_j$ refers to transactions ~~trades~~ of hedging set 'j';
- (ii) d_i^{FX} is the appropriate trade-level adjusted notional amount calculated in accordance with paragraphs 3.15(b) and 3.16 of this Annex;
- (iii) δ_i is the appropriate supervisory delta adjustment calculated in accordance with paragraphs 3.17 to 3.17C of this Annex; ~~and~~
- (iv) MF_i^{type} is the appropriate maturity factor calculated in accordance with paragraphs 3.18 to 3.18C of this Annex; ~~and~~;

(v) $\delta_i \times d_i^{FX} \times MF_i^{type}$ is the effective notional of each derivative transaction in the hedging set.

[MAS Notice 637 (Amendment No. 3) 2021]

3.10A A Reporting Bank shall use the same ordering convention for each currency pair consistently across the Reporting Bank. The Reporting Bank shall choose the ordering convention that corresponds to the market practice for how derivatives in the respective currency pair are quoted and traded.

[MAS Notice 637 (Amendment No. 3) 2021]

Add-on for credit derivatives

3.11 A Reporting Bank shall calculate the add-on for credit derivatives²⁹², $AddOn^{Credit}$, as follows²⁹³:

$$AddOn^{Credit} = \left[\left(\sum_k \rho_k^{Credit} \times AddOn(Entity_k) \right)^2 + \sum_k \left(1 - (\rho_k^{Credit})^2 \right) \times (AddOn(Entity_k))^2 \right]^{\frac{1}{2}}$$

²⁹² ~~The protection seller of a credit default swap shall only be subject to the add-on factor where it is subject to closeout upon the insolvency of the protection buyer while the underlying is still solvent. [Deleted by MAS Notice 637 (Amendment No. 3) 2021]~~

²⁹³ ~~Only derivatives referencing the same entity (which could be either a single name or an index) are allowed to offset each other fully. Derivatives referencing different entities are only allowed partial offsetting. [Deleted by MAS Notice 637 (Amendment No. 3) 2021]~~

where --

- (a) ρ_k^{Credit} is the appropriate credit correlation factor corresponding to entity 'k' specified in Table 7O-1;
- (b) $AddOn(Entity_k)$ is the add-on for entity 'k' calculated using the following formula²⁹⁴:

$$AddOn(Entity_k) = SF_k^{Credit} \times EffectiveNotional_k^{Credit}$$

where --

- (i) SF_k^{Credit} is the ~~appropriate credit~~ supervisory factor ~~specified in Table 7O-1~~ calculated in accordance with paragraphs 3.19 and 3.19A of this Annex; and
- (ii) $EffectiveNotional_k^{Credit}$ is the effective notional for entity 'k' calculated using the following formula:

$$Effective\ Notional_k^{Credit} = \sum_{i \in Entity_k} \delta_i \times d_i^{Credit} \times MF_i^{type}$$

where --

- (A) $i \in Entity_k$ refers to transactions ~~trades~~ relating to entity 'k';
- (B) d_i^{Credit} is the appropriate trade-level adjusted notional amount calculated in accordance with paragraphs 3.15(a), 3.15A and 3.16 of this Annex;
- (C) δ_i is the appropriate supervisory delta adjustment calculated in accordance with paragraphs 3.17 to 3.17C of this Annex; ~~and~~
- (D) MF_i^{type} is the appropriate maturity factor calculated in accordance with paragraphs 3.18 to 3.18C of this Annex; ~~and~~.
- (E) $\delta_i \times d_i^{Credit} \times MF_i^{type}$ is the effective notional of each derivative transaction in the hedging set.

[MAS Notice 637 (Amendment No. 3) 2021]

²⁹⁴ ~~Similar to a derivative referencing an index, a derivative referencing a basket of underlying names is to be treated as though it is a derivative referencing a separate entity with 'k' uniquely defined. The supervisory parameters applicable to a derivative referencing a basket of underlying names is the same as the supervisory parameters applicable to a derivative referencing an index, except where the derivative is a nth-to-default transaction. Where the credit derivative is a first-to-default transaction, the add-on shall be determined by the lowest quality underlying in the basket, that is, the Reporting Bank shall apply the supervisory factor corresponding to the lowest quality underlying in the basket. For a second-to-default transaction, the add-on shall be determined by the second lowest quality underlying in the basket. For a nth-to-default transaction, the add-on shall be determined by the nth-lowest quality underlying in the basket. [Deleted by MAS Notice 637 (Amendment No. 3) 2021]~~

3.11A A Reporting Bank shall treat a derivative referencing a credit index or a basket of underlying names as a separate entity with 'k' uniquely defined. The Reporting Bank shall ensure that the supervisory parameters applicable to a derivative referencing a basket of underlying names are the same as the supervisory parameters applicable to a derivative referencing a credit index.

[MAS Notice 637 (Amendment No. 3) 2021]

Add-on for equity derivatives

3.12 A Reporting Bank shall calculate the add-on for equity derivatives, $AddOn^{Equity}$, as follows²⁹⁵:

$$AddOn^{Equity} = \left[\left(\sum_k \rho_k^{Equity} \times AddOn(Entity_k) \right)^2 + \sum_k \left(1 - (\rho_k^{Equity})^2 \right) \times (AddOn(Entity_k))^2 \right]^{\frac{1}{2}}$$

where -

- (a) ρ_k^{Equity} is the appropriate equity correlation factor corresponding to entity 'k' specified in Table 7O-1;
- (b) $AddOn(Entity_k)$ is the add-on for entity 'k' calculated using the following formula:

$$AddOn(Entity_k) = SF_k^{Equity} \times EffectiveNotional_k^{Equity}$$

where --

- (i) SF_k^{Equity} is the ~~appropriate equity~~ supervisory factor ~~specified in Table 7O-1~~ calculated in accordance with paragraph 3.19 of this Annex; and
- (ii) $EffectiveNotional_k^{Equity}$ is the effective notional for entity 'k' calculated using the following formula:

$$EffectiveNotional_k^{Equity} = \sum_{i \in Entity_k} \delta_i \times d_i^{Equity} \times MF_i^{type}$$

where --

- (A) $i \in Entity_k$ refers to trades relating to entity 'k';

²⁹⁵ ~~Only derivatives referencing the same entity (which could be either a single name or an index) are allowed to offset each other fully. Derivatives referencing different entities are only allowed partial offsetting.~~
[Deleted by MAS Notice 637 (Amendment No. 3) 2021]

- (B) d_i^{Equity} is the appropriate trade-level adjusted notional amount calculated in accordance with paragraph 3.15(c) and 3.16 of this Annex;
- (C) δ_i is the appropriate supervisory delta adjustment calculated in accordance with paragraph 3.17 to 3.17C of this Annex; ~~and~~
- (D) MF_i^{type} is the appropriate maturity factor calculated in accordance with paragraph 3.18 to 3.18C of this Annex; ~~and~~
- (E) $\delta_i \times d_i^{Equity} \times MF_i^{type}$ is the effective notional of each derivative transaction in the hedging set.

[MAS Notice 637 (Amendment No. 3) 2021]

3.12A A Reporting Bank shall treat a derivative referencing an equity index or a basket of equities as a separate entity with 'k' uniquely defined. The Reporting Bank shall ensure that the supervisory parameters applicable to a derivative referencing a basket of underlying equities are the same as the supervisory parameters applicable to a derivative referencing an equity index.

[MAS Notice 637 (Amendment No. 3) 2021]

Add-on for commodity derivatives

3.12B For the calculation of the add-on for commodity derivatives, a Reporting Bank may only offset fully long and short positions for commodity derivatives where the long and short positions reference the same type of underlying commodity. The Reporting Bank may only partially offset commodity derivatives referencing different types of underlying commodities if they are in the same hedging set. The Reporting Bank shall not offset commodity derivatives if they are in different hedging sets^{295A}.

[MAS Notice 637 (Amendment No. 3) 2021]

3.13 A Reporting Bank shall calculate the add-on for commodity derivatives, $AddOn^{Com}$, as the sum of the add-ons for each hedging set of commodity derivatives transacted with a counterparty in a netting set, as follows:

$$AddOn^{Com} = \sum_j AddOn_j^{Com}$$

where $AddOn_j^{Com}$ is the hedging set-level add-on for hedging set 'j' calculated using the following formula:

^{295A} For example, a Reporting Bank shall not offset a forward contract on crude oil against a forward contract on corn.

[MAS Notice 637 (Amendment No. 3) 2021]

$$AddOn_j^{Com} =$$

$$\left[\left(\rho_j^{Com} \times \sum_k AddOn(Type_k^j) \right)^2 + \left(1 - (\rho_j^{Com})^2 \right) \times \sum_k (AddOn(Type_k^j))^2 \right]^{\frac{1}{2}}$$

where --

- (a) ρ_j^{Com} is the appropriate commodity correlation factor corresponding to hedging set 'j' specified in Table 70-1; and
- (b) $AddOn(Type_k^j)$ refers to the add-on for commodity type 'k' in hedging set 'j' calculated using the following formula:

$$AddOn(Type_k^j) = SF_{Type_k^j}^{Com} \times EffectiveNotional_k^{Com}$$

where --

- (i) $SF_{Type_k^j}^{Commodity}$ is the ~~appropriate commodity~~ supervisory factor ~~specified in Table 70-1~~ calculated in accordance with paragraph 3.19 of this Annex; and
- (ii) $EffectiveNotional_k^{Com}$ is the effective notional for commodity type 'k' calculated using the following formula:

$$Effective\ Notional_k^{Com} = \sum_{i \in Type_k^j} \delta_i \times d_i^{Com} \times MF_i^{type}$$

where --

- (A) $i \in Type_k^j$ refers to transactions ~~trades~~ of commodity type 'k' in hedging set 'j';
- (B) d_i^{Com} is the appropriate trade-level adjusted notional amount calculated in accordance with paragraphs 3.15(c) and 3.16 of this Annex;
- (C) δ_i is the appropriate supervisory delta adjustment calculated in accordance with paragraphs 3.17 to 3.17C of this Annex; ~~and~~
- (D) MF_i^{type} is the appropriate maturity factor calculated in accordance with paragraphs 3.18 to 3.18C of this Annex; ~~and-~~
- (E) $\delta_i \times d_i^{Com} \times MF_i^{type}$ is the effective notional of each derivative transaction in the hedging set.

[MAS Notice 637 (Amendment No. 3) 2021]

3.14 For the purposes of the calculation in paragraph 3.13 of this Annex, a Reporting Bank shall assess that the commodities referenced by the derivative transactions grouped under each commodity type demonstrate stable and meaningful joint dynamics. If the commodities referenced by the derivative transactions grouped under each commodity type do not demonstrate stable and meaningful joint dynamics, and if the Reporting Bank is significantly exposed to the basis risk of different products within the commodity types, the Reporting Bank shall ~~The Authority may, by notice in writing, require a Reporting Bank to use more refined definitions of commodity types. commodities with regard to characteristics such as location and quality, when the Reporting Bank is significantly exposed to the basis risk of different products within the commodity types~~²⁹⁶ The Authority may require the Reporting Bank to use more refined definitions of commodity types.

[MAS Notice 637 (Amendment No. 3) 2021]

Effective notional for options

3.14A For the purposes of paragraphs 3.9, 3.10, 3.11, 3.12 and 3.13 of this Annex, a Reporting Bank shall calculate the effective notional of an option in accordance with paragraphs 3.14B and 3.14C of this Annex.

[MAS Notice 637 (Amendment No. 3) 2021]

3.14B For the purposes of calculating the effective notional of an option, a Reporting Bank shall –

- (a) in the case of a single-payment option where the option's payoff can be represented as a payoff of a combination of European option^{296A}, treat each European option component as a separate transaction; and
- (b) in the case of a multiple-payment option, treat the option as a combination of single-payment options^{296B}, and for each single-payment option, define S_i and T_i as the time periods starting from the current date to the start of the coupon period and E_i as the time period starting from the current date to the end of the coupon period.

[MAS Notice 637 (Amendment No. 3) 2021]

3.14C A Reporting Bank shall calculate the effective notional of a bought or sold digital option that has strike price equal to K_i as the lower of –

²⁹⁶ For example, with regard to characteristics such as location and quality. To illustrate, ~~For example,~~ the energy hedging set may contains commodity types such as crude oil, electricity, natural gas and coal. However, crude oil as a commodity type within the energy hedging set, could omit a substantial basis risk between different types of crude oil products such as West Texas Intermediate, Brent, Saudi Light, etc.

[MAS Notice 637 (Amendment No. 3) 2021]

^{296A} Examples include collars, butterfly/calendar spreads, straddles, and strangles.

[MAS Notice 637 (Amendment No. 3) 2021]

^{296B} For example, a Reporting Bank shall treat an interest rate cap or floor as individual caplets or floorlets, respectively, each of which is a European option on the floating interest rate over a specific coupon period.

[MAS Notice 637 (Amendment No. 3) 2021]

(a) the effective notional of a "collar" combination of bought and sold European options of the same type (call or put) with the strikes set equal to $0.95.K_i$ and $1.05.K_i$ where –

(i) the size of the "collar" components referred to in sub-paragraph (a) are such that the payoff of the digital option is reproduced exactly outside the region between the two strike prices; and

(ii) the effective notional for the bought and sold European option components that make up the "collar" referred to in sub-paragraph (a) are calculated separately, and using the exercise date T_i and the current value of the underlying P_i of the digital option as inputs for the calculation of the supervisory delta adjustment in accordance with paragraph 3.17 of this Annex; and

(b) the ratio of the payoff of the digital option to the relevant supervisory factor.

[MAS Notice 637 (Amendment No. 3) 2021]

Trade-level adjusted notional amount

3.15 For the purposes of paragraphs 3.9, 3.10, 3.11, 3.12 and 3.13 of this Annex, a Reporting Bank shall calculate the trade-level adjusted notional amount for interest rate, foreign exchange, credit, equity and commodity derivatives ~~referred to in paragraphs 3.9 to 3.13 of this Annex~~, as follows:

(a) ~~F~~for interest rate and credit derivatives, the product of the trade notional amount converted to the domestic currency of the Reporting Bank, and the supervisory duration SD_i , which is calculated using the following formula:

$$SD_i = \frac{\exp(-0.05 \times S_i) - \exp(-0.05 \times E_i)}{0.05}$$

where –

(i) S_i and E_i (expressed in years) are the periods of time (starting from the current reporting date) until the start and end-dates, respectively, of the time period referenced by the interest rate or credit derivative, as applicable. Where the start date has occurred (for example, ongoing interest rate swap), the Reporting Bank shall set S_i to zero; and

(ii) ~~subject to a minimum E_i~~ SD_i is subject to a minimum of ten business days. Where the start date has occurred (for example, ongoing interest rate swap), the Reporting Bank shall set S_i to zero. A Reporting Bank shall make a distinction between the time period of the underlying instrument and the remaining maturity of the derivative transaction. If the derivative transaction references the value of another interest rate or credit instrument (for example, in the case of swaption or bond option), the

~~Reporting Bank shall determine the time period on the basis of the underlying instrument²⁹⁷.~~

- (b) ~~F~~for foreign exchange derivatives, the trade notional amount of the foreign currency leg of the contract converted to the domestic currency of the Reporting Bank, or where both legs of a foreign exchange derivative are denominated in currencies other than the domestic currency of the Reporting Bank, the higher of the trade notional amount of each leg converted to the domestic currency of the Reporting Bank; ~~and~~
- (c) ~~F~~for equity and commodity derivatives, the product of the current price of one unit of the stock or commodity^{297A} ~~(for example, a share of equity or barrel of oil)~~ and the number of units referenced by the trade. For equity and commodity volatility transactions, the Reporting Bank shall replace the unit price by the underlying volatility or variance referenced by the transaction, and the number of units by the contractual notional.

[MAS Notice 637 (Amendment No. 3) 2021]

3.15A For the purposes of determining S_i and E_i in paragraph 3.15(a) of this Annex, a Reporting Bank shall make a distinction between the time period of the underlying instrument and the remaining maturity of the derivative transaction. If the derivative transaction references the value of another interest rate or credit instrument^{297B}, the Reporting Bank shall determine S_i and E_i on the basis of the underlying instrument^{297C}. In the case of Bermudan swaptions, the Reporting Bank shall set S_i as the time period (starting from the current reporting date) until the earliest contractual exercise date and E_i as the time period (starting from the current reporting date) until the end date of the underlying swap.

[MAS Notice 637 (Amendment No. 3) 2021]

3.16 For the purpose of calculating the trade-level adjusted notional amount in paragraph 3.15 of this Annex, a Reporting Bank shall use the trade notional amount stated in the contract in the case where it is stated clearly and fixed until maturity. Otherwise, the Reporting Bank shall determine the trade notional amount as follows:

- (a) ~~[Deleted by MAS Notice 637 (Amendment No. 3) 2021]For transactions with multiple payoffs that are state-contingent such as digital options or target~~

²⁹⁷ ~~For example, a European interest rate swaption with expiry of 1 year and the term of the underlying swap of 5 years has $S_i = 1$ year and $E_i = 6$ years. [Deleted by MAS Notice 637 (Amendment No. 3) 2021]~~

^{297A} ~~For example, a share of equity or barrel of oil.~~

[MAS Notice 637 (Amendment No. 3) 2021]

^{297B} ~~For example, in the case of swaption or bond option.~~

[MAS Notice 637 (Amendment No. 3) 2021]

^{297C} ~~For example, a European interest rate swaption with expiry of 1 year and the term of the underlying swap of 5 years has $S_i = 1$ year and $E_i = 6$ years.~~

[MAS Notice 637 (Amendment No. 3) 2021]

~~redemption forwards, the Reporting Bank shall calculate the trade notional amount for each state and use the largest resulting calculation²⁹⁸;~~

- (b) ~~F~~for transactions where the notional is a formula of market values, the Reporting Bank shall calculate the trade notional amount by inputting current market values into the formula;
- (c) ~~F~~for all interest rate and credit derivatives with variable notional amounts specified in the contract^{298A} ~~swaps such as amortising and accreting swaps~~, the Reporting Bank shall calculate the trade notional amount as the time-weighted average notional over the remaining life of the derivative swap²⁹⁹. To avoid doubt, this treatment does not apply to transactions where the trade notional amount varies due to price changes^{299A};
- (d) ~~F~~for leveraged swaps, the Reporting Bank shall calculate the trade notional amount by converting the stated notional amount into the notional amount of an equivalent unleveraged swap. Where all rates in a swap are multiplied by a factor, the Reporting Bank shall calculate the trade notional amount as the product of the stated notional amount and the factor on the rates; ~~and~~
- (e) ~~F~~for transactions with multiple exchanges of principal, the Reporting Bank shall calculate the trade notional amount as the product of the stated notional amount and the remaining number of exchanges of principal in the derivative contract.

[MAS Notice 637 (Amendment No. 3) 2021]

Supervisory delta adjustment

3.17 ~~For the purposes of paragraphs 3.9, 3.10, 3.11, 3.12 and 3.13 of this Annex, a~~ Reporting Bank shall calculate the appropriate supervisory delta adjustment for transaction 'i', δ_i , for interest rate, foreign exchange, credit, equity and commodity derivatives ~~referred to in paragraphs 3.9 to 3.13 of this Annex~~, to reflect its direction and non-linearity (if applicable) as follows:

²⁹⁸ ~~For digital options, the fixed payoff amount that is paid if certain conditions are met, effectively represents the maximum potential exposure on the trade (for example, in the case of a digital call option, the fixed amount that is owed to the buyer of the option upon exercise if the current price exceeds the strike price). The Reporting Bank shall gross up the payoff amount to a trade level adjusted notional amount using the appropriate supervisory delta adjustment and maturity factor, resulting in a PFE equal to the payoff amount. For example, a foreign exchange digital option with a payoff of \$3 million, supervisory delta adjustment of 0.6, and remaining maturity of 0.25 years would have a trade level adjusted notional amount of \$250 million ($=\$3\text{ million}/\sqrt{(0.25)/0.6/4\%}$).~~[Deleted by MAS Notice 637 (Amendment No. 3) 2021]

^{298A} ~~Examples include amortising and accreting swaps.~~

[MAS Notice 637 (Amendment No. 3) 2021]

²⁹⁹ ~~For the avoidance of doubt, this treatment applies to all interest rate and credit derivatives with variable notional amounts specified by the contract. This treatment does not apply to transactions where the SA-CCR notional varies due to price changes (typically, foreign exchange, equity, and commodity derivatives).~~[Deleted by MAS Notice 637 (Amendment No. 3) 2021]

^{299A} ~~Examples include foreign exchange, equity, and commodity derivatives.~~

[MAS Notice 637 (Amendment No. 3) 2021]

	Long in the primary risk factor ³⁰⁰	Short in the primary risk factor ³⁰¹
Instruments that are not options or collateralised debt obligation ("CDO") tranches, and options or CDO tranches that are not amenable to be treated under the formulas for options and CDO tranches	$\delta_i = +1$	$\delta_i = -1$
<u>where:</u> <u>"Long in the primary risk factor" means that the market value of the instrument increases when the value of the primary risk factor increases; and</u> <u>"Short in the primary risk factor" means that the market value of the instrument decreases when the value of the primary risk factor increases.</u>		

[MAS Notice 637 (Amendment No. 3) 2021]

	Bought	Sold
Call options	$\delta_i = +\Phi\left(\frac{\ln\left(\frac{P_i + \lambda_j}{K_i + \lambda_j}\right) + 0.5 \times \sigma_i^2 \times T_i}{\sigma_i \times \sqrt{T_i}}\right)$	$\delta_i = -\Phi\left(\frac{\ln\left(\frac{P_i + \lambda_j}{K_i + \lambda_j}\right) + 0.5 \times \sigma_i^2 \times T_i}{\sigma_i \times \sqrt{T_i}}\right)$
Put options	$\delta_i = -\Phi\left(-\frac{\ln\left(\frac{P_i + \lambda_j}{K_i + \lambda_j}\right) + 0.5 \times \sigma_i^2 \times T_i}{\sigma_i \times \sqrt{T_i}}\right)$	$\delta_i = +\Phi\left(-\frac{\ln\left(\frac{P_i + \lambda_j}{K_i + \lambda_j}\right) + 0.5 \times \sigma_i^2 \times T_i}{\sigma_i \times \sqrt{T_i}}\right)$
<u>where:</u> Φ represents the standard normal cumulative distribution function; P_i is the underlying price (for example, spot, forward, average, etc.) ³⁰² ; K_i is the strike price; T_i is the <u>period of time (starting from the current reporting date) until the latest contractual exercise date of the option, expressed in years; and</u> σ_i is the appropriate supervisory option volatility specified in Table 7O-1; <u>and-</u> $\lambda_j =$ <u>(a) for interest rate options where P_i/K_i is zero or negative, is the shift in the price and strike values and represents the presumed lowest possible extent to which interest rates in the respective currency can become negative; and</u> <u>(b) in all other cases, is zero.</u>		

[MAS Notice 637 (Amendment No. 3) 2021]

	Purchased (long protection)	Sold (short protection)
CDO tranches	$\delta_i = +\frac{15}{(1 + 14 \times A_i) \times (1 + 14 \times D_i)}$	$\delta_i = -\frac{15}{(1 + 14 \times A_i) \times (1 + 14 \times D_i)}$
<u>where:</u>		

³⁰⁰ ~~"Long in the primary risk factor" means that the market value of the instrument increases when the value of the primary risk factor increases. [Deleted by MAS Notice 637 (Amendment No. 3) 2021]~~

³⁰¹ ~~"Short in the primary risk factor" means that the market value of the instrument decreases when the value of the primary risk factor increases. [Deleted by MAS Notice 637 (Amendment No. 3) 2021]~~

³⁰² Where appropriate, the Reporting Bank should use the forward value instead of the spot value of the underlying in the supervisory delta adjustment formula in order to account for the risk-free rate and for possible cash flows prior to the option expiry such as dividends.

A_i is the attachment point of the CDO tranche; and
 D_i is the detachment point of the CDO tranche.

3.17A A Reporting Bank shall seek approval from the Authority for the specification and value of λ_j . The Reporting Bank shall apply the same value of λ_j when calculating the supervisory delta for all interest rate options in the same currency.

[MAS Notice 637 (Amendment No. 3) 2021]

3.17B For the purposes of calculating the supervisory delta adjustment for European, Asian, American and Bermudan call and put options, a Reporting Bank shall –

(a) use the formula for call and put options specified in paragraph 3.17 of this Annex. To avoid doubt, for American and Bermudan options, T_i is the period of time (starting from the current reporting date) until the latest allowed contractual exercise date of the option; and

(b) for Asian call and put options, set P_i referred to in paragraph 3.17 of this Annex to the current value of the average used in the payoff.

[MAS Notice 637 (Amendment No. 3) 2021]

3.17C A Reporting Bank shall treat an nth-to-default transaction on a pool of m reference names as a CDO tranche for the purposes of calculating the supervisory delta adjustment for the transaction. The Reporting Bank shall use an attachment point of $A=(n-1)/m$ and a detachment point of $D=n/m$ to calculate the supervisory delta adjustment for the transaction in accordance with the formula applicable to CDO tranches in paragraph 3.17 of this Annex.

[MAS Notice 637 (Amendment No. 3) 2021]

Time risk horizon

3.18 A Reporting Bank shall calculate the appropriate maturity factor for transaction 'i', MF_i^{type} , reflecting the time risk horizon appropriate for the type of transaction (that is, unmargined or margined), as follows^{302A}:

(a) For unmargined transactions, using the following formula:

$$MF_i^{unmargined} = \sqrt{\frac{\min \{M_i; 1 \text{ year}\}}{1 \text{ year}}}$$

^{302A} ~~The Reporting Bank shall use consistent units of measurement of the numerator and denominator in the calculation of maturity factor. For example, if M_i and $MPOR_i$ are measured in years, then the denominator is 1 year, and if M_i and $MPOR_i$ are measured in business days, then the denominator is to also be expressed in business days. [Deleted by MAS Notice 637 (Amendment No. 3) 2021]~~

where M_i (expressed in years) is the remaining maturity of transaction 'i',^{302B, 302C, 302D} and is based on the time period (starting from the current reporting date) until the latest date when the transaction may still be active, and M_i is subject to a minimum of 10 business days;

(b) ~~F~~for margined transactions, using the following formula:

$$MF_i^{margined} = \frac{3}{2} \sqrt{\frac{MPOR_i}{1 \text{ year}}}$$

where $MPOR_i$ is the margin period of risk appropriate for the margin agreement containing transaction 'i', and $MPOR_i$ is subject to the minimum margin period of risk that applies under paragraph 6.5 of Annex 7Q or paragraph 2.14 of Annex 7AJ, whichever is applicable.

[MAS Notice 637 (Amendment No. 3) 2021]

3.18A For the purposes of the calculation of the maturity factor for a transaction pursuant to paragraph 3.18(a) or (b) of this Annex, a Reporting Bank shall use standard market convention to convert business days into years, and vice versa.^{302DA}

[MAS Notice 637 (Amendment No. 3) 2021]

3.18B If a derivative transaction has another derivative transaction as its underlying^{302DB} and may be physically exercised into the underlying derivative transaction (that is, a position in the underlying derivative transaction would be assumed by the Reporting Bank upon exercise), a Reporting Bank shall set M_i referred to in paragraph 3.18(a) of this

^{302B} For example, ~~for the remaining maturity for~~ a one-month option on a 10-year Treasury bond, M_i of the transaction is one month, (i.e. the one-month to expiration date of the derivative contract) and E_i . ~~However, the end date of the transaction is based on the 10-year remaining maturity on the Treasury bond, and is 10 years.~~

[MAS Notice 637 (Amendment No. 3) 2021]

^{302C} ~~If a derivative transaction has another derivative transaction as its underlying (for example, swaption) and may be physically exercised into the underlying derivative transaction (that is, a position in the underlying derivative transaction would be assumed by the Reporting Bank upon exercise), then the Reporting Bank shall set M_i as the final settlement date of the underlying derivative transaction. [Deleted by MAS Notice 637 (Amendment No. 3) 2021]~~

^{302D} ~~For a transaction that is structured to settle outstanding exposures on specified payment dates and where the terms are reset such that the fair value of the contract is zero on these specified dates, the remaining maturity would be equal to the time until the next reset date. [Deleted by MAS Notice 637 (Amendment No. 3) 2021]~~

^{302DA} For example –

(a) for unmargined transactions, the maturity parameter (M_i) referred to in paragraph 3.18(a) of this Annex is expressed in years but is subject to a floor of 10 business days. A Reporting Bank should calculate the floor for M_i as 10/250 years, where a year is represented by 250 business days; and

(b) for margined transactions, the margin period of risk ($MPOR_i$) is often expressed in days, but the calculation of the maturity factor for margined netting sets as referred to in paragraph 3.18(b) of this Annex references 1 year in the denominator. When calculating the maturity factor in paragraph 3.18(b) of this Annex, a Reporting Bank may represent the denominator as 250 business days; or alternatively, represent $MPOR_i$ expressed in business days in the numerator in years by dividing it by 250.

[MAS Notice 637 (Amendment No. 3) 2021]

^{302DB} For example, swaptions.

[MAS Notice 637 (Amendment No. 3) 2021]

Annex as the time period (starting today) until final settlement date of the underlying derivative transaction.

[MAS Notice 637 (Amendment No. 3) 2021]

3.18C For a transaction that is structured to settle outstanding exposures on specified payment dates and where the terms are reset such that the fair value of the contract is zero on these specified dates, a Reporting Bank shall –

- (a) treat the transaction as an unmargined transaction;
- (b) set M_i referred to in paragraph 3.18(a) of this Annex to be equal to the time until the next reset date; and
- (c) subject M_i to a minimum of 10 business days.

[MAS Notice 637 (Amendment No. 3) 2021]

Supervisory parameters

3.18D Table 7O-1 and paragraph 3.19 of this Annex set out the supervisory parameters for the supervisory factor, correlation factor and supervisory option volatility.

[MAS Notice 637 (Amendment No. 3) 2021]

3.19 For the purposes of paragraphs 3.9, 3.10, 3.11, 3.12 and 3.13 of this Annex, a Reporting Bank shall apply the appropriate supervisory factor in Table 7O-1, except in either of the following cases:—

- (a) a hedging set consisting of basis transactions, in which case the Reporting Bank shall adjust the appropriate supervisory factor in Table 7O-1 by multiplying it by a factor of 0.5; ~~and~~
- (b) a hedging set consisting of volatility transactions, in which case the Reporting Bank shall adjust the appropriate supervisory factor in Table 7O-1 by multiplying it by a factor of 5.

[MAS Notice 637 (Amendment No. 3) 2021]

3.19A For determining the supervisory factor for the credit asset class in Table 7O-1, a Reporting Bank shall assign a reference entity a credit quality grade based on the external credit assessment that is applicable to the reference entity in accordance with Table 7R-1 of Annex 7R. For a reference entity which does not have an external credit assessment by a recognised ECAI, the Reporting Bank shall map the internal rating under the IRBA, of the reference entity to the appropriate credit quality grade, if the Reporting Bank has received approval from the Authority to adopt the IRBA pursuant to Division 4 of Part VII. In all other cases, the Reporting Bank shall apply a supervisory factor of 1.06%.

[MAS Notice 637 (Amendment No. 3) 2021]

3.19B For the purposes of paragraphs 3.9, 3.10, 3.11, 3.12, 3.13 and 3.17 of this Annex, a Reporting Bank shall not make any modelling assumptions in the calculation of the add-on for each asset class and shall use the supervisory parameters set out in Table 70-1 and paragraph 3.19 of this Annex.

[MAS Notice 637 (Amendment No. 3) 2021]

Table 70-1 – Supervisory Parameters

Asset Class		Subclass	Supervisory factor	Correlation factor	Supervisory option volatility
Interest rate			0.5%	N/A	50%
Foreign exchange			4%	N/A	15%
Credit ^{302E}	Single name	Credit Quality Grade 1	0.38%	50%	100%
		Credit Quality Grade 2	0.42%	50%	100%
		Credit Quality Grade 3	0.54%	50%	100%
		Credit Quality Grade 4	1.06%	50%	100%
		Credit Quality Grade 5	1.6%	50%	100%
		Credit Quality Grade 6	6%	50%	100%
	Index	Credit Quality Grade 1 to 3	0.38%	80%	80%
		Credit Quality Grade 4 to 6	1.06%	80%	80%
Equity	Single name		32%	50%	120%
	Index		20%	80%	75%
Commodity		Electricity	40%	40%	150%
		Oil/Gas	18%	40%	70%
		Metals	18%	40%	70%
		Agricultural commodities	18%	40%	70%
		Other	18%	40%	70%

^{302E} ~~A Reporting Bank shall assign a reference entity to a credit quality grade based on the external credit assessment that is applicable to the reference entity in accordance with Table 7R-1 of Annex 7R. For a reference entity which does not have an external credit assessment by a recognised ECAI, if the Reporting Bank has received approval from the Authority to adopt the IRBA pursuant to Division 4 of Part VII, it shall map the internal rating of the reference entity to the appropriate credit quality grade, and in all other cases, it shall apply a supervisory factor of 1.06%.~~ [Deleted by MAS Notice 637 (Amendment No. 3) 2021]

3.19C Table 70-2 sets out example transactions and the related maturity M_i , Start Date S_i , and End Date E_i of each transaction, in accordance with paragraphs 3.15(a), 3.15A, 3.18(a), 3.18B and 3.18C of this Annex.

[MAS Notice 637 (Amendment No. 3) 2021]

Table 70-2 – Example Transactions and Related Maturity M_i , Start Date S_i , and End Date E_i

Instrument	M_i	S_i	E_i
Interest rate or credit default swap maturing in 10 years	10 years	0	10 years
10-year interest rate swap, forward starting in 5 years	15 years	5 years	15 years
Forward rate agreement for time period starting in 6 months and ending in 12 months	1 year <u>(assuming payment is made at the end of the period)</u> 0.5 year (if payment is made at the beginning of the period ^{302F})	0.5 year	1 year
Cash-settled European swaption referencing 5-year interest rate swap with exercise date in 6 months	0.5 year	0.5 year	5.5 years
Physically-settled European swaption referencing 5-year interest rate swap with exercise date in 6 months	5.5 years	0.5 year	5.5 years
10-year Bermudan swaption with annual exercise dates	10 years	1 year	10 years
Interest rate cap or floor specified for semi-annual interest rate with maturity 5 years	5 years	0	5 years
Option on a bond maturing in 5 years with the latest exercise date in 1 year	1 year	1 year	5 years
3-month Eurodollar futures that matures in 1 year	1 year	1 year	1.25 years
Futures on 20-year treasury bond that matures in 2 years	2 years	2 years	22 years

^{302F} ~~M_i of 1 year~~ This assumes that payment is made at the end of the period (similar to vanilla interest rate swaps). If the payment is made at the beginning of the period, as is typically the case according to market convention, M_i is 0.5 years.

[MAS Notice 637 (Amendment No. 3) 2021]

6-month option on 2-year futures on 20-year treasury bond	2 years	2 years	22 years
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[MAS Notice 637 (Amendment No. 3) 2021]

Section 4: Treatment of Multiple Margin Agreements and Multiple Netting Sets

4.1 In the case where multiple margin agreements apply to a single netting set, a Reporting Bank shall divide the netting set into sub-netting sets that align with their respective margin agreements. ~~The Reporting Bank shall – for the purposes of calculating RC and PFE –~~

~~(a) calculate the RC for the entire netting set in accordance with paragraph 2.3 of this Annex where –~~

~~(i) V is the current market value of all margined and unmargined derivative transactions in the netting set;~~

~~(ii) C is the haircut value of net collateral (including both variation margin and NICA) held by the Reporting Bank for all derivative transactions in the netting set, adjusted by applying the standard supervisory haircuts in Annex 7J for the margin period of risk of the transactions, such that the value of non-cash collateral posted by the Reporting Bank to its counterparty is increased, and the value of non-cash collateral received by the Reporting Bank from its counterparty is decreased;~~

~~(iii) TH is the sum of the counterparty thresholds across all variation margin agreements within the netting set; and~~

~~(iv) MTA is the sum of the minimum transfer amounts across all variation margin agreements within the netting set; and~~

~~(b) calculate the PFE of the entire netting set as the product of the aggregate add-on and the multiplier where –~~

~~(i) the multiplier is calculated in accordance with paragraph 3.1(b) of this Annex, with the inputs V and C calculated in accordance with subparagraphs (a)(i) and (a)(ii); and~~

~~(ii) the aggregate add-on is calculated as the sum of the aggregated add-ons for each sub-netting set where –~~

~~(A) all unmargined transactions within the netting set form a single sub-netting set; and~~

~~(B) all margined transactions within the netting set that share the same $MPOR$ form a single sub-netting set.~~

[MAS Notice 637 (Amendment No. 3) 2021]

4.2 In the case where a single margin agreement applies to multiple netting sets, a Reporting Bank shall –

- (a) calculate the replacement cost for the entire margin agreement, RC_{MA} , as follows^{302G}:

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

where the summation $NS \in MA$ is across the netting sets covered by the margin agreement, V_{NS} is the current mark-to-market value of netting set 'NS' and C_{MA} is the haircut value of net collateral (including both variation margin and NICA) held under the margin agreement 'MA', adjusted by applying the standard supervisory haircuts in Annex 7J for the margin period of risk of the transactions, such that the value of non-cash collateral posted by the Reporting Bank to its counterparty is increased, and the value of non-cash collateral received by the Reporting Bank from its counterparty is decreased; and

- (b) allocate the available collateral C to the netting sets, for the calculation of the multiplier, as follows:

(i) if the Reporting Bank is a net receiver of collateral ($C > 0$), all individual collateral amounts that are allocated to the individual netting sets shall be positive or zero. The Reporting Bank shall first allocate to netting sets with positive market values, collaterals up to the amount of the market values of the respective netting sets. The Reporting Bank may attribute surplus collateral freely among all other netting sets only after all the netting sets with positive market values have been compensated;

(ii) if the Reporting Bank is a net provider of collateral ($C < 0$), all individual collateral amounts that are allocated to the individual netting sets shall be negative or zero. The Reporting Bank shall first allocate to netting sets with negative market values, collaterals up to the amount of the market values of the respective netting sets. If the collateral provided is larger than the sum of the negative market values of the netting sets, the Reporting Bank shall set all multipliers to 1;

(iii) the Reporting Bank shall ensure that the allocated collaterals add up to the total amount of collaterals available for the margin agreement; and

^{302G} The first term is equal to the unmargined current exposure of the Reporting Bank to the counterparty aggregated across all netting sets under the margin agreement reduced by the positive current net collateral (that is, collateral is subtracted only when the Reporting Bank is a net holder of collateral). The second term is equal to the current net posted collateral (if any) reduced by the unmargined current exposure of the counterparty to the Reporting Bank aggregated across all netting sets under the margin agreement (that is, it is non-zero only when the Reporting Bank is a net poster of collateral).

~~(b)~~(c) calculate the amount for potential future exposure for the entire margin agreement, PFE_{MA} , as the sum of netting set-level PFEs calculated using the formulas for unmargined transactions, as follows:

$$PFE_{MA} = \sum_{NS \in MA} PFE_{NS}^{unmargined}$$

where $PFE_{NS}^{(unmargined)}$ is the PFE for netting set 'NS' calculated using the formulas for unmargined transactions.

[MAS Notice 637 (Amendment No. 3) 2021]

Section 4A: Treatment of collateral taken outside of netting sets

4A.1 A Reporting Bank shall treat eligible collateral, which is taken outside a netting set that is unmargined but is available to the Reporting Bank to offset losses due to counterparty default on one netting set only, as an independent collateral amount associated with the netting set and used within the calculation of the RC in accordance with paragraph 2.1 of this Annex.

[MAS Notice 637 (Amendment No. 3) 2021]

4A.2 A Reporting Bank shall treat eligible collateral, which is taken outside a netting set that is margined but is available to the Reporting Bank to offset losses due to counterparty default on one netting set only, as an independent collateral amount associated with the netting set and used within the calculation of the RC in accordance with paragraph 2.3 of this Annex.

[MAS Notice 637 (Amendment No. 3) 2021]

4A.3 A Reporting Bank shall treat eligible collateral, which is taken outside a netting set but is available to the Reporting Bank to offset losses due to counterparty default on more than one netting set, as collateral taken under a margin agreement applicable to multiple netting sets and calculate RC and PFE in accordance with paragraph 4.2 of this Annex.

[MAS Notice 637 (Amendment No. 3) 2021]

4A.4 In cases where the eligible collateral is available to offset losses on non-derivative as well as exposures determined using the SA-CCR, a Reporting Bank shall use only the portion of the collateral assigned to the derivatives to reduce the derivatives exposure.

[MAS Notice 637 (Amendment No. 3) 2021]

[Section 5 deleted by MAS Notice 637 (Amendment No. 3) 2021]

Section 5: Transitional Arrangements

~~5.1 This Annex shall not apply to a Reporting Bank for the period from 1 January 2017 to—~~

~~(a) 31 December 2021 (both dates inclusive); or~~

~~(b) one day before the day where the Reporting Bank has pursuant to paragraph 5.3 elected to comply with this Annex (both dates inclusive);~~

~~whichever occurs first.~~

~~[MAS Notice 637 (Amendment) 2021]~~

~~5.2—A Reporting Bank referred to in paragraph 5.1 shall continue to comply with Annex 70 of MAS 637, including all definitions used in Annex 70 which are set out in Part II of this Notice, in force immediately before 1 January 2017 during the period referred to in paragraph 5.1.~~

~~5.3—Notwithstanding paragraphs 5.1 and 5.2, a Reporting Bank may elect to comply with this Annex at any time before the expiry of the period referred to in paragraph 5.1. When a Reporting Bank elects to comply with this Annex, the Reporting Bank shall give the Authority notice in writing of the date from which the Reporting Bank elects to comply with this Annex (the “election date”), no less than 30 days before the election date and in that event, paragraph 5.1 shall not apply to the Reporting Bank from the election date.~~

~~5.4—For the avoidance of doubt, these transitional arrangements are intended to apply wherever Annex 70 is referenced in this Notice.~~

CCR INTERNAL MODELS METHOD

Section 2: Exposure Measurement

Amendments to paragraphs 2.8 to 2.13

2.8 A Reporting Bank which has not recognised the effect of eligible financial collateral through the CCR internal models method may do so by applying the relevant rules on the treatment of collateral under the FC(CA) in accordance with paragraphs 2.9 to 2.13 below.

[MAS Notice 637 (Amendment No. 3) 2021]

2.9 [Deleted by MAS Notice 637 (Amendment No. 3) 2021] A Reporting Bank using the SA(CR) may use either the FC(SA) or the FC(CA) to recognise the effect of eligible financial collateral for any OTC derivative transaction, long settlement transaction or SFT in the banking book. The Reporting Bank shall apply the chosen approach consistently to the entire banking group and shall not use a combination of both approaches. For any pre-settlement counterparty exposure arising from an OTC derivative transaction, long settlement transaction or SFT in the trading book, a Reporting Bank using the SA(CR) shall use only the FC(CA) to recognise the effect of eligible financial collateral.

2.10 [Deleted by MAS Notice 637 (Amendment No. 3) 2021] A Reporting Bank using the SA(CR) and FC(SA) may recognise the effect of eligible financial collateral for an OTC derivative transaction in accordance with Sub-division 4 of Division 3 of Part VII.

2.11 [Deleted by MAS Notice 637 (Amendment No. 3) 2021] A Reporting Bank which has taken eligible financial collateral for an OTC derivative transaction may—

(a) if it is using the SA(CR) and the FC(CA), calculate E*, the SA(CR) exposure adjusted for eligible financial collateral, in accordance with paragraph 2.12 of this Annex and substitute E* for E when calculating the credit risk-weighted exposure amount for an SA(CR) exposure; or

(b) if it is using the F-IRBA and the FC(CA),³⁰⁴ calculate EAD_{adj}, the IRBA exposure adjusted for eligible financial collateral, for an IRBA exposure, in accordance with paragraph 2.12 of this Annex and use EAD_{adj} to calculate LGD* in accordance with Sub-division 7 of Division 4 of Part VII.³⁰⁵

[MAS Notice 637 (Amendment) 2016]

2.12 [Deleted by MAS Notice 637 (Amendment No. 3) 2021] A Reporting Bank using the FC(CA) shall calculate E* or EAD_{adj}, the exposure amount adjusted for eligible financial collateral, for any collateralised OTC derivative transaction using the following formula:

$$E^* \text{ (or EAD}_{adj}\text{)} = E \text{ (or EAD)} - C(1 - H_C - H_{FX})$$

³⁰⁴ [Deleted by MAS Notice 637 (Amendment No. 3) 2021] The FC(SA) is not available to a Reporting Bank using the F-IRBA.

³⁰⁵ [Deleted by MAS Notice 637 (Amendment No. 3) 2021] For avoidance of doubt, the EAD for any IRBA exposure is not affected by this calculation of EAD_{adj}.

where—

- (a) ~~“E*(or EAD_{adj})” refers to the exposure value after risk mitigation;~~
- (b) ~~“E (or EAD)” refers to the exposure value calculated in accordance with paragraph 2.14 of this Annex, whichever is applicable;~~
- (c) ~~“C” refers to the fair value of the collateral received³⁰⁶;~~
- (d) ~~“H_C” refers to the haircut appropriate to the collateral, or if the collateral is a basket of assets, the weighted sum of the haircuts appropriate to the assets in the basket where each weight is the weight of the asset in the basket determined in accordance with Annex 7J of Part VII; and~~
- (e) ~~“H_{FX}” refers to the haircut appropriate for the currency mismatch between the collateral and exposure determined in accordance with Annex 7J of Part VII. “H_{FX}” shall also be applied if there is a mismatch between the collateral currency and the settlement currency. This applies even in the case where there are more than two currencies involved in the exposure, collateral and settlement currency.~~

~~[MAS Notice 637 (Amendment) 2016]~~

2.13 ~~[Deleted by MAS Notice 637 (Amendment No. 3) 2021]~~A Reporting Bank adopting the A-IRBA or the IRBA for the IRBA retail asset class may take collateral into account when deriving its own estimates of LGD.

Section 6: Margin Agreements

Amendments to paragraph 6.5 and Table 7Q-1, and insertion of paragraph 6.5A

6.5 For modeling EAD with margin agreements, a Reporting Bank shall –

- (a) for transactions subject to daily re-margining and mark-to-market valuation:
 - (i) apply a floor on the margin period of risk of each netting set in accordance with the following table:

Table 7Q-1 – Floors on Margin Period of Risk for Netting Sets

Type of netting set	Floor (in business days)
Netting set consisting only of <u>repo-style transactions</u> repos, reverse repos, securities lending or securities borrowing transactions	5

³⁰⁶ ~~[Deleted by MAS Notice 637 (Amendment No. 3) 2021]~~Where the residual maturity of the collateral is shorter than the residual maturity of the exposure, the Reporting Bank shall substitute P_A calculated in accordance with Annex 7J of Part VII for $C(1 - H_C - H_{FX})$.

Netting set where the number of trades <u>transactions</u> exceeds 5,000 at any point during a quarter	20 (for the following quarter)
Netting set containing one or more trades <u>transactions</u> involving either illiquid collateral or an OTC derivative <u>transaction</u> that cannot be easily replaced, determined in the context of stressed market conditions ^{306H} . <u>This does not apply in the case of any transitional illiquidity of collateral and OTC derivative transactions that reference a new benchmark rate, for up to one year after the discontinuation of an old benchmark rate.</u> <u>Stressed market conditions are characterised by the absence of continuously active markets where a counterparty would, within two or fewer days, obtain multiple price quotations that would not move the market or represent a price reflecting a market discount (in the case of collateral) or premium (in the case of an OTC derivative transaction).</u>	20
All other netting sets	10

[MAS Notice 637 (Amendment) 2012]

[MAS Notice 637 (Amendment No. 3) 2021]

- (ii) in relation to any quarter ("relevant quarter"), use a margin period of risk that appropriately reflects the duration of margin call disputes over ~~the previous two quarters~~ immediately preceding the relevant quarter, and which is at least double the floor set out in Table 7Q-1 for the relevant quarter and the next quarter after the relevant quarter subsequent two quarters for a netting set where there are more than two margin call disputes over the ~~previous two quarters~~ immediately preceding the relevant quarter that have lasted longer than the applicable floors set out in Table 7Q-1; ~~For the avoidance of doubt,~~
- (iii) count every instance of a margin call being disputed, this subparagraph shall apply regardless of the size of the margin call disputed;
- (iiiiv) consider whether ~~trades~~ transactions or securities it holds as collateral are concentrated in a particular counterparty and if that

^{306H} ~~Stressed market conditions are characterised by the absence of continuously active markets where a counterparty would, within two or fewer days, obtain multiple price quotations that would not move the market or represent a price reflecting a market discount (in the case of collateral) or premium (in the case of an OTC derivative).~~ Examples of situations where ~~trades~~ transactions are deemed illiquid for this purpose include, but are not limited to, ~~trades~~ transactions that are not marked daily and ~~trades~~ transactions that are subject to specific accounting treatment for valuation purposes (e.g. transactions referencing securities whose fair value is determined by models with inputs that are not observed in the market).

[MAS Notice 637 (Amendment No. 3) 2021]

counterparty exited the market precipitously, whether the Reporting Bank would be able to replace its transactions-trades;

[MAS Notice 637 (Amendment No. 3) 2021]

- (b) for transactions subject to re-margining with a periodicity of N-days, use a margin period of risk at least equal to the floor plus N days minus one day:

[MAS Notice 637 (Amendment) 2016]

Margin period of risk = $F + N - 1$

where –

- (i) F is the floor; and
- (ii) N is the periodicity.

6.5A For the purposes of paragraph 6.5 of this Annex, in the case of non-centrally cleared derivative transactions that are subject to the Guidelines on Margin Requirements for Non-Centrally Cleared OTC Derivatives Contracts [SFA 15-G03], a Reporting Bank, when determining the margin period of risk in accordance with paragraph 6.5(a)(ii) of this Annex or counting instances where margin calls are disputed in accordance with paragraph 6.5(a)(iii) of this Annex, must include only variation margin call disputes.

[MAS Notice 637 (Amendment No. 3) 2021]

EXPOSURES TO CENTRAL COUNTERPARTIES

Section 1: Overview

1.1 Subject to paragraph 1.1A of this Annex, a ~~A~~ Reporting Bank shall include in the calculation of its CCP RWA exposures to CCPs arising from all of the following transactions:⁴⁰¹ ~~in the calculation of its CCP RWA~~

- (a) OTC derivative transactions;
- (b) exchange-traded derivative transactions;
- (c) SFTs; ~~and~~
- (d) ~~Long~~ settlement transactions.

[MAS Notice 637 (Amendment No. 2) 2014]

[MAS Notice 637 (Amendment No. 3) 2021]

Where the clearing member-to-client leg of an exchange-traded derivative transaction is conducted under a bilateral agreement, a Reporting Bank shall, whether it is a clearing member or a client in the transaction, or a lower level client or higher level client in the case of a multi-level client structure, capitalise that transaction as an OTC derivative transaction in accordance with Sub-division 3 or Sub-division 4 of Division 1 of ~~this~~ Part VII and calculate CVA RWA for such exposures in accordance with Annex 7AI.

[MAS Notice 637 (Amendment) 2016]

[MAS Notice 637 (Amendment No. 3) 2021]

1.1A A Reporting Bank shall not include, in the calculation of its CCP RWA, exposures arising from the settlement of cash transactions^{401A}, which are subject to the requirements in paragraphs 7.3.36 to 7.3.40, or Sub-division 13 of Division 4 of Part VII, whichever is applicable.

[MAS Notice 637 (Amendment No. 3) 2021]

1.2 ~~Where a Reporting Bank applies paragraph 1.3 of this Annex for calculating CCP RWA for exposures to a qualifying CCP, the~~ A Reporting Bank shall ensure that the CCP meets all of the following requirements in order to be treated as a qualifying CCP:

~~[MAS Notice 637 (Amendment No. 2) 2014]~~

⁴⁰¹ ~~[Deleted by MAS Notice 637 (Amendment No. 3) 2021] For the avoidance of doubt, exposures arising from the settlement of cash transactions, such as equity, fixed income, spot foreign exchange or spot commodity transactions shall not be included in the calculation of the CCP RWA.~~

^{401A} Examples include equity, fixed income, spot foreign exchange and spot commodity transactions.

[MAS Notice 637 (Amendment No. 3) 2021]

^{401AB} ~~[Deleted by MAS Notice 637 (Amendment) 2016]~~

- (a) the CCP holds a licence to operate as a CCP (including a licence granted by way of confirming an exemption), and is permitted by a financial services regulatory authority to operate as a CCP with respect to the products it offers;
- (b) the CCP is based and subject to prudential standards and supervision in a jurisdiction where the financial services regulatory authority has established, and publicly indicated that the financial services regulatory authority applies to the CCP on an ongoing basis, domestic rules and regulations that are consistent with the CPSS-IOSCO Principles for Financial Market Infrastructures; ~~and~~

~~[MAS Notice 637 (Amendment No. 2) 2014]~~

- (c) the ~~requirements in paragraph 3.2(a) and (b) of this Annex are met, to permit the Reporting Bank to calculate its capital requirement for default fund exposures to the CCP. terms defined in paragraphs 3.6 to 3.9 of this Annex relating to the calculation of the capital requirement for default fund exposures are made available or calculated in accordance with the requirements in paragraph 3.2 of this Annex.~~

~~[MAS Notice 637 (Amendment No. 2) 2014]~~

~~[MAS Notice 637 (Amendment) 2016]~~

~~[MAS Notice 637 (Amendment No. 3) 2021]~~

1.3 Subject to paragraph 1.3A of this Annex, for exposures to a qualifying CCP, a Reporting Bank shall calculate the CCP RWA for exposures to the CCP as the sum of –

- (a) RWA for CCP trade exposures calculated in accordance with Section 2 of this Annex; and
- (b) RWA for default fund exposures, calculated as the capital requirement calculated in accordance with ~~paragraph 3.5 to 3.9 of this Annex~~ Section 3 of this Annex, multiplied by 12.5. ~~For avoidance of~~ To avoid doubt, the Reporting Bank shall apply a 0% risk weight to its contributions to pre-funded default funds covering settlement-risk-only products.

~~[MAS Notice 637 (Amendment) 2016]~~

~~[MAS Notice 637 (Amendment No. 3) 2021]~~

1.3A Where a Reporting Bank's CCP RWA (calculated in accordance with paragraph 1.3 of this Annex) for CCP trade exposures and default fund contribution to a qualifying CCP is higher than the CCP RWA (calculated in accordance with paragraph 1.5 of this Annex) that would apply if the CCP is a non-qualifying CCP, the Reporting Bank shall calculate its CCP RWA for CCP trade exposures and default fund contribution to the qualifying CCP in accordance with paragraph 1.5 of this Annex.

~~[MAS Notice 637 (Amendment) 2016]~~

~~[MAS Notice 637 (Amendment No. 3) 2021]~~

^{401BC} [Deleted by MAS Notice 637 (Amendment) 2016]

1.4 ~~[Deleted by MAS Notice 637 (Amendment No. 3) 2021]The Authority shall have the discretion to determine if a Reporting Bank shall be required to hold more than the CCP RWA calculated in accordance with paragraph 1.3 of this Annex, under Part X⁴⁰².~~
~~[MAS Notice 637 (Amendment) 2016]~~

1.5 For exposures to a CCP which is not a qualifying CCP, a Reporting Bank shall calculate the CCP RWA for exposures to the CCP as the sum of –

- (a) RWA for CCP trade exposures calculated by applying the steps set out in Sub-division 3 of Division 1 of Part VII⁴⁰³; and
- (b) 1250% of default fund exposures, including all pre-funded contributions and unfunded⁴⁰⁴ contributions which are liable to be paid by the Reporting Bank should the CCP so require. ~~To avoid~~ ~~For avoidance of~~ doubt, the Reporting Bank shall apply a 0% risk weight to its contributions to pre-funded default funds covering settlement-risk-only products.

[MAS Notice 637 (Amendment) 2016]
~~[MAS Notice 637 (Amendment No. 3) 2021]~~

1.5A To avoid doubt, a Reporting Bank shall not include the RWA for CCP trade exposures mentioned in paragraph 1.5(a) of this Annex within the SA(CR) RWA of the Reporting Bank.

~~[MAS Notice 637 (Amendment No. 3) 2021]~~

1.5B For the purposes of paragraph 1.5(b) of this Annex, where there is unlimited liability for unfunded contributions arising from unlimited binding commitments of a Reporting Bank to the default fund of any CCP, the Reporting Bank shall ensure that the amount of unfunded commitments to which the 1250% risk weight applies is determined by the Authority.

~~[MAS Notice 637 (Amendment No. 3) 2021]~~

1.6 For exposures to a CCP which operates in a jurisdiction that does not have a financial services regulatory authority applying the CPSS-IOSCO Principles for Financial Market Infrastructures, a Reporting Bank shall calculate the CCP RWA for exposures to the CCP in accordance with paragraph 1.5 of this Annex, unless the Authority determines otherwise.

[MAS Notice 637 (Amendment) 2016]

⁴⁰² ~~[Deleted by MAS Notice 637 (Amendment No. 3) 2021]This might be appropriate where, for example, an external assessment such as a Financial Sector Assessment Program by the International Monetary Fund and World Bank has found material shortcomings in the CCP or the regulation of CCPs, and the CCP or the financial services regulatory authority supervising the CCP has not since publicly addressed the issues identified.~~

⁴⁰³ ~~[Deleted by MAS Notice 637 (Amendment No. 3) 2021]For avoidance of doubt, the RWA for such CCP trade exposures shall not be included within the SA(CR) RWA of the Reporting Bank.~~

⁴⁰⁴ ~~[Deleted by MAS Notice 637 (Amendment No. 3) 2021]Where there is unlimited liability for unfunded contributions (i.e. unlimited binding commitments) of the Reporting Bank to the default fund of any CCP, the amount of unfunded commitments to which the 1250% risk weight should apply shall be determined by the Authority under Part X.~~

1.7 Where a CCP (for which CCP RWA had been calculated in accordance with paragraph 1.3 of this Annex) ceases to meet the requirements to be treated as a qualifying CCP set out in paragraph 1.2 of this Annex, a Reporting Bank shall, within three months of the CCP ceasing to meet the requirements to be treated as a qualifying CCP set out in paragraph 1.2 of this Annex, calculate the CCP RWA for exposures to the CCP in accordance with paragraph 1.3 of this Annex, unless the Authority requires otherwise. After the three months, the Reporting Bank shall calculate the CCP RWA for exposures to the CCP in accordance with paragraph 1.5 of this Annex.

[MAS Notice 637 (Amendment) 2016]

1.8 ~~Notwithstanding Despite~~ paragraphs 1.2, 1.3 and 1.5 of this Annex and regardless of whether a CCP is treated as a qualifying CCP, a Reporting Bank shall ensure that it maintains adequate capital for its exposures to a CCP and shall consider as part of its ICAAP under Part X if it should hold capital in excess of the requirements set out in paragraphs 1.3 and 1.5 of this Annex ~~if, for example, including where –~~

~~(a) its transactions with the CCP give rise to exposures that pose higher risks;~~

~~(b) or where,~~ given the context of that Reporting Bank's dealings with the CCP, it is unclear that the CCP meets the requirements specified in paragraph 1.2 of this Annex; ~~or~~

~~(c) an external assessment^{404A} has found shortcomings in the CCP or the regulation of CCPs, and the CCP or the financial services regulatory authority supervising the CCP has not since publicly addressed the issues identified.~~

[MAS Notice 637 (Amendment) 2016]

[MAS Notice 637 (Amendment No. 3) 2021]

1.9 Where a Reporting Bank acts as a clearing member of a CCP, it shall 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~~ Reporting Bank shall include, in the assessment, potential future or contingent exposures resulting from future drawings on default fund commitments, and from secondary commitments to take over or replace offsetting transactions from clients of another clearing member in case of that clearing member defaulting or becoming insolvent.

1.10 A Reporting Bank shall monitor and report to senior management and the appropriate committee of the Board of the Reporting Bank on a regular basis all its exposures to CCPs, ~~which shall include including~~ exposures arising from trading through a CCP and exposures arising from CCP membership obligations, ~~such as including~~ default fund contributions.

[MAS Notice 637 (Amendment No. 3) 2021]

1.11 In the case where a CCP (i.e. second CCP) is treated as a clearing member of another CCP (i.e. first CCP), a Reporting Bank shall determine whether the second CCP's collateral contribution to the first CCP is treated as initial margin or a default fund

^{404A} For example, a Financial Sector Assessment Program by the International Monetary Fund.

[MAS Notice 637 (Amendment No. 3) 2021]

contribution based upon the legal arrangement between the CCPs, and shall consult the Authority on its determination.

[MAS Notice 637 (Amendment No. 3) 2021]

Section 2: CCP Trade Exposures to Qualifying CCPs

[MAS Notice 637 (Amendment No. 3) 2021]

Exposures to a CCP where a Reporting Bank is a Clearing Member

2.1 Where a Reporting Bank acts as a clearing member of a CCP for its own purposes, the Reporting Bank shall calculate its RWA for CCP trade exposures as 2% of E or EAD, whichever is applicable, of the Reporting Bank's CCP trade exposures to the CCP. Where a Reporting Bank which acts as a clearing member of a CCP offers clearing services to clients, the Reporting Bank shall calculate its RWA for CCP trade exposures as 2% of E or EAD, whichever is applicable, of the Reporting Bank's CCP trade exposures to the CCP, that arises when the Reporting Bank is obligated to reimburse the client for any losses due to changes in the value of its transactions in the event that the CCP defaults. The Reporting Bank shall calculate its RWA for collateral posted to the CCP in accordance with paragraphs 2.8 to 2.13 of this Annex.

[MAS Notice 637 (Amendment) 2016]

2.1A For the purposes of paragraphs 2.1 and 2.5 to 2.6 of this Annex, a Reporting Bank shall calculate E or EAD, whichever is applicable, of the CCP trade exposures in accordance with paragraphs 2.2 to 2.4 of this Annex.

[MAS Notice 637 (Amendment No. 3) 2021]

2.2 A Reporting Bank shall calculate E or EAD, whichever is applicable, of the CCP trade exposures in accordance with Sub-divisions 6, 7 or 8, whichever is applicable, and Sub-division 9 of Division 2 of Part VII, ~~including the provisions for calculating the effects of CRM for collateralised transactions.~~ —A Reporting Bank shall apply the method for calculating E or EAD, whichever is applicable, of CCP trade exposures consistently as that applied for the Reporting Bank's measurement of its other pre-settlement counterparty exposures.^{404A}

[MAS Notice 637 (Amendment No. 2) 2014]

[MAS Notice 637 (Amendment) 2016]

[MAS Notice 637 (Amendment No. 3) 2021]

^{404AB} ~~[Deleted by MAS Notice 637 (Amendment No. 3) 2021]Where a Reporting Bank provides clearing services to clients and passes collateral collected from a client to the CCP for trades cleared through a CCP, the Reporting Bank may recognise the effects of CRM for such collateral in both capitalisation of exposures to the client and the capitalisation of exposures to the CCP. Where the Reporting Bank is part of a multi-level client structure, the same treatment for such collateral may apply to transactions between both lower level clients and higher level clients. For the avoidance of doubt, a Reporting Bank may, in calculating E or EAD of the collateralised transactions with their clients, recognise the effects of CRM of the initial margin posted by their clients.~~

~~[MAS Notice 637 (Amendment No. 2) 2014]~~

~~[MAS Notice 637 (Amendment) 2016]~~

2.3 A Reporting Bank that is calculating E or EAD, whichever is applicable in accordance with paragraph 2.2 of this Annex shall comply with all the following requirements:

- (a) where the number of transactions exceeds 5,000 at any point during a quarter, the Reporting Bank shall not apply the 20-business day floor for the margin period of risk and the minimum holding period for a netting set as set out in paragraph 6.5 of Annex 7Q and Table 7J-3 of Annex 7J, if there are no disputed transactions within the netting set and the netting set does not contain any illiquid collateral or exotic transactions;
- (b) the Reporting Bank shall, in all cases, apply a minimum margin period of risk of 10 business days to the calculation of RWA for CCP trade exposures for OTC derivative transactions;
- (c) where CCPs retain variation margin against certain transactions and collateral posted by a clearing member is not protected against the insolvency of the CCP, the Reporting Bank shall ensure that the minimum time risk horizon applied to the Reporting Bank's CCP trade exposures on such trades is the lesser of one year and the remaining maturity of the transaction, subject to a floor of 10 business days.

~~Notwithstanding paragraph 2.2 of this Annex, for a Reporting Bank calculating E or EAD, whichever is applicable, using the CCR internal models method or SA-CCR, the 20-day floor for the margin period of risk and the minimum holding period for a netting set where the number of trades exceeds 5,000 at any point during a quarter, as set out in paragraph 6.5 of Annex 7Q and Table 7J-2 of Annex 7J, shall not apply if there are no disputed trades within the netting set and the netting set does not contain any illiquid collateral or exotic trades, subject to the following—~~

- ~~(a) in all cases, a minimum margin period of risk of 10 business days shall apply to the calculation of RWA for trade exposures to CCPs for OTC derivative transactions; and~~
- ~~(b) where CCPs retain variation margin against certain trades and collateral posted by a clearing member is not protected against the insolvency of the CCP, the minimum time risk horizon applied to the Reporting Banks' trade exposures on such trades shall be the lesser of one year and the remaining maturity of the transaction, subject to a floor of 10 business days.~~

[MAS Notice 637 (Amendment) 2016]

[MAS Notice 637 (Amendment No. 2) 2020]

[MAS Notice 637 (Amendment No. 3) 2021]

2.4 Where the settlement of transactions is legally enforceable on a net basis in an event of default, regardless of whether the counterparty is insolvent or bankrupt, a Reporting Bank may calculate the total replacement cost of all contracts relevant to the calculation of E or EAD, whichever is applicable, of CCP trade exposures as a net replacement cost if the applicable close-out netting sets meet the requirements set out in Annex 7N, applied to any netting agreement that provides legally enforceable rights of

⁴⁰⁵ [Deleted by MAS Notice 637 (Amendment) 2016]

~~set-off~~⁴⁰⁶. If the Reporting Bank is not able to ensure that the netting agreements meet these requirements, the Reporting Bank shall regard each single transaction as a netting set of its own for the calculation of CCP trade exposures.

[MAS Notice 637 (Amendment) 2016]

[MAS Notice 637 (Amendment No. 3) 2021]

Exposures to a CCP where a Reporting Bank is a Client of a Clearing Member

2.5 Where a Reporting Bank is a client of a clearing member or a lower level client in a multi-level client structure, and enters into a transaction with the clearing member or a higher level client acting as a financial intermediary (i.e. the clearing member or higher level client completes an offsetting transaction with a CCP or clearing member), or enters into a transaction with a CCP with a clearing member or higher level client guaranteeing the performance of the Reporting Bank, the Reporting Bank shall treat the exposure arising from the transaction as a CCP trade exposure and calculate the RWA for such CCP trade exposures in accordance with paragraphs 2.1 to 2.4 of this Annex if the following conditions are met:

~~(a) The~~ the Reporting Bank shall confirm that the offsetting transactions are identified by the CCP as client transactions;

~~(b) and shall the Reporting Bank shall~~ obtain a written independent legal opinion which concludes⁴⁰⁷ that –

~~(i) the collateral is held by the CCP or the clearing member, or both,~~ to support ~~such the offsetting transactions is held by the CCP or the clearing member or both, as applicable,~~ under one or more arrangements that prevent any losses to the Reporting Bank due to –

~~(iA)~~ the default or insolvency of the clearing member;

~~(iB)~~ the default or insolvency of the other clients of the clearing member's ~~other clients~~; and

⁴⁰⁶ ~~For the purposes of this Annex, the treatment of netting shall include any netting agreement that provides legally enforceable rights of set-off.~~ This takes into account that for netting agreements employed by CCPs, no standardisation has currently emerged that would be comparable to level of standardisation with respect to netting agreements for bilateral trading of OTC derivative transactions.

[MAS Notice 637 (Amendment No. 3) 2021]

⁴⁰⁷ ~~That is, in the event of legal challenge, the relevant courts and administrative authorities would find that the arrangements set out in paragraph 2.5(a) of this Annex would be legal, valid, binding and enforceable under the relevant laws of the relevant jurisdictions.~~ While a Reporting Bank may use either an in-house or external legal counsel for the purpose of obtaining a written independent legal opinion, it should consider whether or not an in-house counsel opinion is appropriate. In the case of an in-house legal counsel, the Reporting Bank should ensure that the in-house legal counsel is independent of the parties originating the transactions which the Reporting Bank enters into with a clearing member, higher level client or CCP as specified in paragraph 2.5 of this Annex.

[MAS Notice 637 (Amendment) 2016]

[MAS Notice 637 (Amendment No. 3) 2021]

~~(iiiC)~~ the joint default or insolvency of the clearing member and any of its other clients⁴⁰⁸; ~~and~~

~~(ii) under the arrangements in sub-paragraph (b)(i), upon the insolvency of the clearing member, there is no legal impediment (other than the need to obtain a court order to which the client is entitled) to the transfer of the collateral belonging to clients of a defaulting clearing member of the CCP, to one or more other surviving clearing members of the CCP, or to clients or their respective nominees;^{408A} and~~

~~(iii) the arrangements in sub-paragraph (b)(i) are binding on all relevant parties and legally enforceable in all relevant jurisdictions within the meaning of paragraph 3.1(a) of Annex 7N;~~

~~(c) the Reporting Bank shall ensure that the arrangements in sub-paragraph (b)(i) do not cease to be enforceable and there continues to be no legal impediment under sub-paragraph (b)(ii);~~

~~(bd) the Reporting Bank shall ensure that the relevant laws, regulation, rules, contractual arrangements, or and administrative arrangements, that govern the transaction between the Reporting Bank and the clearing member, higher level client or CCP, as the case may be –~~

~~(i) provide that the offsetting transactions with the a defaulted or insolvent clearing member that has defaulted, or an insolvent clearing member, will are highly likely^{408A} to continue to be indirectly transacted through the CCP, or by the CCP, should the clearing member default or become insolvent; and~~

~~(ii) allow for the Reporting Bank's positions and collateral placed with the CCP to be transferred at market value unless the Reporting Bank requests to close out at market value.~~

[MAS Notice 637 (Amendment No. 2) 2014]

[MAS Notice 637 (Amendment) 2016]

[MAS Notice 637 (Amendment No. 3) 2021]

⁴⁰⁸ ~~[Deleted by MAS Notice 637 (Amendment No. 3) 2021] That is, upon the insolvency of the clearing member, there is no legal impediment (other than the need to obtain a court order to which the Reporting Bank, as a client of the clearing member, is entitled) to the transfer of the collateral belonging to clients of a defaulting clearing member to the CCP, to one or more other surviving clearing members or to the Reporting Bank or the Reporting Bank's nominee. The Reporting Bank should consult the Authority to determine if this is achieved based on particular facts. The Authority intends to consult and communicate with other financial services regulatory authorities via the "frequently asked questions" process of the Basel Committee on Banking Supervision to ensure consistency.~~

^{408A} ~~The Reporting Bank should consult the Authority to determine if this is achieved based on particular facts.~~
[MAS Notice 637 (Amendment No. 3) 2021]

^{408AB} ~~[Deleted by MAS Notice 637 (Amendment No. 3) 2021] Where there is a clear precedent for transactions being ported to another clearing member at a CCP and industry intent for this practice to continue, the Reporting Bank may consider these factors when assessing if trades are highly likely to be ported. The Reporting Bank shall not base a determination that the criteria in paragraph 2.5(b) of this Annex is met solely on the absence of any prohibition of the porting of client trades in documentation provided by the CCP.~~

[MAS Notice 637 (Amendment No. 2) 2014]

2.5A For the purposes of paragraph 2.5(d) of this Annex, a Reporting Bank shall consider all of the following factors when assessing if offsetting transactions will continue to be indirectly transacted:

(a) whether there is a precedent for transactions being ported to another clearing member of the CCP;

(b) whether there is any reason for the Reporting Bank to believe that the industry practice for such precedent to continue, will be changed.

The Reporting Bank shall not determine that the criteria in paragraph 2.5(d)(i) and (ii) of this Annex are met solely on the basis that there is no prohibition against the porting of client trades in any documentation provided by the CCP, including in rules imposed by or agreements entered into with, the CCP, that govern transactions transacted with or through the CCP.

[MAS Notice 637 (Amendment No. 3) 2021]

2.5AB Where a Reporting Bank is a lower level client in a multi-level client structure, the Reporting Bank shall apply the capital treatment specified in paragraph 2.5 of this Annex to exposures arising from transactions with the higher level client acting as a financial intermediary or exposures arising from transactions with a CCP with a higher level client guaranteeing the performance of the Reporting Bank, if the conditions set out in paragraphs 2.5(a) ~~and 2.5 to (d)~~ of this Annex are met by all the client levels in-between the Reporting Bank and the clearing member.

[MAS Notice 637 (Amendment) 2016]

[MAS Notice 637 (Amendment No. 3) 2021]

2.6 ~~Notwithstanding-Despite~~ paragraph 2.5 of this Annex-, where a Reporting Bank is a client of a clearing member or lower level client in a multi-level client structure, the Reporting Bank shall calculate the RWA for CCP trade exposures to the clearing member or to the higher level client as 4% of E or EAD, whichever is applicable, of the CCP trade exposures ~~calculated in accordance with paragraphs 2.2 to 2.4 of this Annex~~ if all conditions set out in paragraph 2.5 of this Annex, other than paragraph ~~2.5(b)(i)(C) 2.5(a)(iii)~~ of this Annex, are met.

[MAS Notice 637 (Amendment) 2016]

[MAS Notice 637 (Amendment No. 3) 2021]

2.7 Where a Reporting Bank is a client of a clearing member or lower level client in a multi-level client structure and ~~cannot meet the conditions set out in paragraphs 2.5 or 2.6 of this Annex are not met to apply the treatment in paragraphs 2.5 and 2.6 of this Annex~~, the Reporting Bank shall capitalise its exposure to the clearing member or to the higher level client as a bilateral trade and shall calculate the RWA for such exposures in accordance with Sub-division 3 or Sub-division 4 of Division 1 of Part VII and calculate CVA RWA for such exposures in accordance with Annex 7AI.

[MAS Notice 637 (Amendment) 2016]

[MAS Notice 637 (Amendment No. 3) 2021]

Treatment of Collateral Posted

2.8 Where a Reporting Bank acts as a clearing member of a CCP, the Reporting Bank shall not be subject to a capital requirement for counterparty credit risk ~~to a custodian~~ for collateral⁴⁰⁹ posted by the Reporting Bank that is included in the definition of CCP trade exposure, is held by a custodian⁴¹⁰ and is bankruptcy remote from the CCP.

[MAS Notice 637 (Amendment No. 3) 2021]

2.9 Where a Reporting Bank acts as a clearing member of a CCP, and posts collateral with the CCP that is included in ~~meets~~ the definition of CCP trade exposure⁴¹¹, is held at the CCP and is not held in a bankruptcy remote manner, the Reporting Bank shall calculate the CCP RWA for such CCP trade exposures as 2% of E or EAD, whichever is applicable, of the collateral posted. However, where a Reporting Bank acts as a clearing member of a CCP and collects collateral from a client and posts it to a CCP, and the collateral is not held in a bankruptcy remote manner, the Reporting Bank is not subject to capital requirements for the posted collateral if the Reporting Bank is not obligated to reimburse the client for any loss of such posted collateral in the event that the CCP defaults.

[MAS Notice 637 (Amendment No. 3) 2021]

2.10 Where a Reporting Bank posts collateral as a client of a clearing member of a CCP and the collateral is included in the definition of CCP trade exposure, is held by a custodian and is bankruptcy remote from the CCP, the clearing member and other clients, the Reporting Bank ~~shall not be subject to~~ need not calculate a capital requirement for counterparty credit risk for the collateral posted.

[MAS Notice 637 (Amendment No. 3) 2021]

2.11 Where a Reporting Bank posts collateral as a client of a clearing member of the CCP and the collateral is included in the definition of CCP trade exposure, is held at the CCP on the Reporting Bank's behalf and is not held ~~on-in~~ a bankruptcy remote ~~basis manner~~, the Reporting Bank shall calculate the RWA for such CCP trade exposures as –

- (a) 2% of E or EAD, whichever is applicable, of the collateral posted if the conditions set out in paragraph 2.5 of this Annex are met; or

⁴⁰⁹ Collateral may include cash, securities, other pledged assets, and excess initial or variation margin (or overcollateralisation).

[MAS Notice 637 (Amendment) 2016]

⁴¹⁰ 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 the creditors of such persons, or to a court-ordered stay of the return of such property, should such person become insolvent or bankrupt.

⁴¹¹ ~~[Deleted by MAS Notice 637 (Amendment No. 3) 2021] Where a Reporting Bank posts collateral with a CCP that does not meet the definition of CCP trade exposure or the definition of default fund, the Reporting Bank shall include such exposure to the CCP in the calculation of SA(CR) RWA or IRBA RWA, whichever is applicable, and shall calculate the RWA for such exposures to the CCP in accordance with Subdivision 3 or Subdivision 4 of Division 1 of Part VII based on the creditworthiness of the CCP.~~

[MAS Notice 637 (Amendment) 2016]

- (b) 4% of E or EAD, whichever is applicable, of the collateral posted if all conditions set out in paragraph 2.5 of this Annex, other than paragraph 2.5(b)(i)(C) 2.5(a)(iii) of this Annex, are met.

[MAS Notice 637 (Amendment No. 3) 2021]

2.11A Where a Reporting Bank posts collateral with a CCP that does not meet the definition of CCP trade exposure and is not posted as a default fund contribution, the Reporting Bank shall include such exposure to the CCP in the calculation of SA(CR) RWA or IRBA RWA, whichever is applicable, and shall calculate the RWA for such exposures to the CCP in accordance with Sub-division 3 or 4 of Division 1 of Part VII based on the creditworthiness of the CCP.

[MAS Notice 637 (Amendment No. 3) 2021]

2.11B Where a Reporting Bank posts collateral as a client of a clearing member of the CCP and the collateral is included in the definition of CCP trade exposure and is held at the CCP on the Reporting Bank's behalf, the Reporting Bank shall capitalise its exposure to the clearing member as a bilateral trade and shall calculate the RWA for such exposures as the product of the risk weight of the clearing member and E or EAD, whichever is applicable, of the collateral posted if –

(a) the collateral is not held in a bankruptcy remote manner; and

(b) the Reporting Bank cannot meet the conditions to apply the treatment in paragraph 2.11(a) and (b) of this Annex.

[MAS Notice 637 (Amendment No. 3) 2021]

2.12 Where a Reporting Bank posts collateral as a client of a clearing member of the CCP and the collateral is held at the clearing member and is not held ~~on-in~~ a bankruptcy remote ~~basis manner~~, ~~a-the~~ Reporting Bank shall calculate the ~~CCP-SA(CR) or IRBA~~ RWA for such exposures to the clearing member by applying the steps set out in Sub-division 3 or ~~Subdivision~~ 4 of Division 1 of Part VII⁴¹² based on the creditworthiness of the clearing member, to recognise credit risk based upon the collateral being exposed to risk of loss.

[MAS Notice 637 (Amendment) 2016]

[MAS Notice 637 (Amendment No. 3) 2021]

2.12A For the purposes of paragraphs 2.8 to 2.12 of this Annex, where a Reporting Bank uses the SA-CCR to calculate E or EAD, whichever is applicable, for pre-settlement counterparty exposures, the Reporting Bank shall include collateral that is posted and not held ~~on-in~~ a bankruptcy remote ~~basis-manner~~ in the NICA term in accordance with Annex 70. Where a Reporting Bank uses the CCR Internal Models Method to calculate E or EAD, whichever is applicable, for pre-settlement counterparty exposures, the Reporting Bank

⁴¹² [Deleted by MAS Notice 637 (Amendment No. 3) 2021] For the avoidance of doubt, the RWA for such CCP trade exposures shall not be included within the SA(CR) RWA or IRBA RWA of the Reporting Bank.

shall apply α to the E or EAD measurement of collateral that is posted and not held ~~in an~~ a bankruptcy remote manner-basis.

[MAS Notice 637 (Amendment) 2016]

[MAS Notice 637 (Amendment No. 3) 2021]

2.13 ~~Notwithstanding paragraphs 2.8 to 2.12 of this Annex, To avoid doubt,~~ for any asset posted as collateral by a Reporting Bank under paragraphs 2.8 to 2.12 of this Annex, the Reporting Bank shall also apply the appropriate capital treatment that applies to such asset ~~under this Notice^{412A}, under Part VII or Part VIII, as if it had not been posted to the CCP.~~

[MAS Notice 637 (Amendment No. 2) 2014]

[MAS Notice 637 (Amendment) 2016]

[MAS Notice 637 (Amendment No. 3) 2021]

Clearing Member Exposures to Clients

2.14 ~~To avoid For the avoidance of~~ doubt, a Reporting Bank that is a clearing member of a CCP shall capitalise its exposures to clients as bilateral transactions in accordance with Sub-division 3 or Sub-division 4 of Division 1 of Part VII and calculate CVA RWA for such exposures in accordance with Annex 7AI, regardless of whether the Reporting Bank guarantees the trade or acts as a financial intermediary between its client and a CCP. To recognise the shorter close-out period for cleared transactions, a Reporting Bank that is a clearing member of a CCP may capitalise its exposure to its clients applying a margin period of risk of at least 5 business days in the CCR Internal Models Method or SA-CCR to calculate E or EAD. ~~A Reporting Bank that is a clearing member of a CCP shall use the reduced E or EAD,~~ whichever is applicable, for its pre-settlement counterparty exposures to clients in the calculation of credit RWA under Sub-division 3 or Sub-division 4 of Division 1 of Part VII and the CVA risk capital requirement under ~~both the CVA standardised method and CVA advanced method Annex 7AI.~~

[MAS Notice 637 (Amendment) 2016]

[MAS Notice 637 (Amendment No. 3) 2021]

2.14A Where a Reporting Bank provides clearing services to clients and passes collateral collected from a client to the CCP for trades cleared through a CCP, the Reporting Bank may recognise the effects of CRM for such collateral in both capitalisation of exposures to the client and the capitalisation of exposures to the CCP. Where the Reporting Bank is part of a multi-level client structure, the Reporting Bank may apply the same treatment for

^{412A} ~~[Deleted by MAS Notice 637 (Amendment No. 3) 2021] For the avoidance of doubt, a Reporting Bank shall treat the collateral as if it had not been posted to the CCP under Part VII or Part VIII. In addition, posted collateral shall be subject to paragraphs 2.8 to 2.12 of this Annex, regardless of whether it is a banking or trading book exposure. The Reporting Bank shall apply the haircut denoted by H_E or H_E set out in paragraphs 1.1 to 1.3 in Annex 7J based on the standardised supervisory haircuts or own estimates haircuts set out in Annex 7J to the measurement of E or EAD for such posted collateral, for the purpose of paragraphs 2.8 to 2.12 of this Annex. For the avoidance of doubt, the Reporting Bank shall not apply the haircuts denoted by H_C and H_{FX} in Annex 7J to reduce the measurement of E or EAD for such posted collateral for the purpose of paragraphs 2.8 to 2.12 of this Annex.~~

~~[MAS Notice 637 (Amendment No. 2) 2014]~~

⁴¹³ ~~[Deleted by MAS Notice 637 (Amendment) 2016]~~

such collateral to transactions between both lower level clients and higher level clients. To avoid doubt, a Reporting Bank may, in calculating E or EAD of the collateralised transactions with their clients, recognise the effects of CRM of the initial margin posted by their clients.

[MAS Notice 637 (Amendment No. 3) 2021]

Section 3: Default Fund Exposures

3.1 A Reporting Bank shall calculate its capital requirement for default fund exposures to a qualifying CCP in accordance with paragraphs 3.2 to 3.13 ~~3.5 to 3.9~~ of this Annex.

[MAS Notice 637 (Amendment No. 2) 2014]

[MAS Notice 637 (Amendment No. 3) 2021]

3.2 A Reporting Bank shall ensure that the following requirements are met in relation to the calculation of the hypothetical capital requirement of a CCP (" K_{CCP} "), the total prefunded default fund contributions from all clearing members (" DF_{CM}^{pref} "), the CCP's prefunded own resources^{413B} which are contributed to the default waterfall, where these are junior or *pari passu* to prefunded default fund contributions of the CCP's clearing members (" DF_{CCP} ") and the Reporting Bank's capital requirement for default fund exposures to the CCP (" $K_{CM(Bank)}$ ") –

- (a) ~~The~~ the CCP, the financial services regulatory authority supervising the CCP or any other entity with access to the required data calculates K_{CCP} , DF_{CM}^{pref} and DF_{CCP} , and where the calculation is performed by the CCP or any other entity, the CCP or any other entity confirms to the Reporting Bank that the calculation is performed in a manner to permit the financial services regulatory authority supervising the CCP to oversee the calculation;
- (b) ~~The~~ the CCP, the financial services regulatory authority supervising the CCP or any other entity performing the calculations makes available sufficient information of the calculation results to the Reporting Bank to permit the Reporting Bank to calculate its capital requirement for default fund exposures to a CCP ($K_{CM(Bank)}$) and to permit the Authority to review and confirm such calculations;
- (c) ~~The~~ the CCP, the financial services regulatory authority supervising the CCP or any other entity performing the calculations, calculates K_{CCP} , DF_{CM}^{pref} and DF_{CCP} quarterly at a minimum, or more frequently if so required by the Authority in case of material changes^{413C} ~~(such as the clearing of a new product by the CCP);~~
- (d) ~~The~~ the CCP, the financial services regulatory authority supervising the CCP or any other entity performing the calculations, makes available to the Authority sufficient aggregate information about the composition of the CCP's exposures to its clearing members and the information provided to the clearing member

^{413A} [Deleted by MAS Notice 637 (Amendment) 2016]

^{413B} ~~[Deleted by MAS Notice 637 (Amendment No. 3) 2021] Contributed capital, retained earnings, and other resources as may be approved by the financial services regulatory authority supervising the CCP.~~

~~[MAS Notice 637 (Amendment) 2016]~~

^{413C} For example, the clearing of a new product by the CCP.

[MAS Notice 637 (Amendment No. 3) 2021]

for the purposes of the calculation of K_{CCP} , DF_{CM}^{pref} and DF_{CCP} , at least quarterly or more frequently if the Authority so requires;

- (e) ~~Where~~ where the Reporting Bank is a subsidiary of a banking institution incorporated outside Singapore, the CCP, the financial services regulatory authority supervising the CCP or any other entity performing the calculations, makes available to the Authority and to the home bank regulatory agency of the Reporting Bank, sufficient aggregate information about the composition of the CCP's exposures to its clearing members and the information provided to the clearing member for the purposes of the calculation of K_{CCP} , DF_{CM}^{pref} and DF_{CCP} , at least quarterly or more frequently if the Authority or the home bank regulatory agency of the Reporting Bank so requires; and
- (f) ~~If~~ the CCP, the financial services regulatory authority supervising the CCP or any other entity performing the calculations shall calculate K_{CCP} , DF_{CM}^{pref} , DF_{CCP} and $K_{CM(Bank)}$ at least quarterly, and whenever there are material changes to the number or exposures of transactions cleared by the CCP or material changes to the financial resources of the CCP.

[MAS Notice 637 (Amendment) 2016]

[MAS Notice 637 (Amendment No. 3) 2021]

3.3 Where a default fund of a CCP is shared between products or types of business with settlement risk only^{413D} ~~(for example, equities and bonds)~~ and products or types of business which give rise to CCR (i.e. OTC derivatives transactions, exchange-traded derivatives transactions, SFTs or long settlement transactions), a Reporting Bank shall calculate the capital requirement for all default fund exposures of the Reporting Bank to the CCP in accordance with paragraphs 3.5 to 3.13-3.9 of this Annex, without apportioning to the different classes or types of business or products.

[MAS Notice 637 (Amendment) 2016]

[MAS Notice 637 (Amendment No. 3) 2021]

3.4 Where the contributions from clearing members to a default fund of a CCP are segregated by product types and only accessible for specific product types, a Reporting Bank shall calculate the capital requirement for the default fund exposures of the Reporting Bank to the CCP in accordance with paragraphs 3.5 to 3.13-3.9 of this Annex for each specific product giving rise to CCR. A Reporting Bank shall obtain a confirmation from the CCP, the financial services regulatory authority supervising the CCP or any other entity performing the calculations of K_{CCP} , DF_{CM}^{pref} and DF_{CCP} that in the case where the CCP's prefunded own resources are shared among the specific product types, the CCP has allocated those funds to each of the calculations of K_{CCP} , DF_{CM}^{pref} and DF_{CCP} , in proportion to the respective product-specific EAD.

[MAS Notice 637 (Amendment) 2016]

[MAS Notice 637 (Amendment No. 3) 2021]

^{413D} For example, equities and bonds.

3.5 The calculation of a Reporting Bank's capital requirement for default fund exposures to a CCP, $K_{CM(Bank)}$, using the formulae⁴¹⁴ in paragraphs 3.6 to ~~3.13~~ 3.9 of this Annex may be performed by the Reporting Bank, the CCP, the financial services regulatory authority supervising the CCP or any other entity with access to the required data, where the requirements in paragraph 3.2 of this Annex are met.

[MAS Notice 637 (Amendment) 2016]
[MAS Notice 637 (Amendment No. 3) 2021]

Calculation of the CCP's Hypothetical Capital Requirement

3.6 A Reporting Bank shall ensure that K_{CCP} ~~shall be is~~ calculated in accordance with the following formula:

$$K_{CCP} = \sum_i EAD_i \times 20\% \times 8\%$$

where –

- (a) K_{CCP} is the hypothetical capital requirement of the CCP due to its counterparty credit risk exposures to all its clearing members and their clients⁴¹⁶; and
- (b) EAD_i is the exposure value of the CCP to clearing member 'i', including both the clearing member's own transactions and client transactions guaranteed by the clearing member, and all values of collateral held by the CCP (including the clearing member's prefunded default fund contribution) against these transactions, relating to the valuation at the end of the reporting date set out in Part XII before the margin called on the final margin call of that day is exchanged. The Reporting Bank shall ensure that the ~~The~~ exposure value of the CCP ~~shall be is~~ calculated by aggregating all clearing member accounts.

[MAS Notice 637 (Amendment) 2016]
[MAS Notice 637 (Amendment No. 3) 2021]

3.7 For the purposes of paragraph 3.6 of this Annex –

- (a) ~~Where~~ a clearing member provides client clearing services, and client transactions and collateral are held in separate (individual or omnibus) sub-accounts to the clearing member's proprietary business, the transactions and collateral in each such client sub-account shall be included in the sum of EAD_i separately. The exposure value of the CCP to a clearing member "i" is the sum of the exposure values of the client sub-accounts and the exposure value of

⁴¹⁴ The formulae considers the size and quality of a qualifying CCP's financial resources, the counterparty credit risk exposures of such CCP, and the application of such resources via the CCP's loss bearing waterfall, in the case of one or more clearing member defaults.

⁴¹⁵ [Deleted by MAS Notice 637 (Amendment No. 3) 2021]

⁴¹⁶ K_{CCP} is calculated on a consistent basis for the sole purpose of determining the capitalisation of clearing member default fund contributions; it does not represent the actual capital requirements for a CCP which may be determined by a CCP and its supervisor.

any house sub-account.⁴¹⁷ If any of these sub-accounts contains both derivative transactions and SFTs, the exposure value of that sub-account is the sum of the exposure values of the derivative transactions and the exposure values of the SFTs;

(b) ~~Where~~ collateral is held by the CCP against a clearing member account or client sub-account containing both derivative transactions and SFTs, the prefunded initial margin provided by the clearing member or client of a clearing member shall be allocated to the exposure values of the SFTs and derivative transactions in proportion to the respective product specific exposure values, calculated in accordance with –

(i) paragraphs 1.2 to 1.4 of Annex 7J ~~and 1.3~~, and applying the standard supervisory haircuts in paragraphs 2.1 and 2.4, ~~in of~~ Annex 7J for SFTs; and

(ii) SA-CCR under Annex 7O without including the recognition of the effect of collateral, for derivative transactions;

(c) ~~Where~~ the default fund contributions of a clearing member are not split with regards to client sub-accounts and house sub-accounts, such default fund contributions are to be allocated per sub-account according to the respective fraction the initial margin of the sub-account has in relation to the total initial margin posted by or for the account of the clearing member;

~~(d) The holding periods for SFTs, as set out in paragraphs 2.4 and paragraphs 4.1 to 4.3 of Annex 7J, and for derivative transactions, as set out in paragraph 6.5 of Annex 7Q, shall apply, with the exception that in the case of netting sets where the number of trades exceeds 5000 at any point in a quarter, the minimum holding period set at the margin period of risk floored at 20 business days set out in paragraph 6.5 of Annex 7Q shall not apply; and~~

~~(ed)~~ ~~The~~ netting sets that are applicable to regulated clearing members are the same as those referred to in paragraph 2.4 of this Annex. For unregulated clearing members, the netting rules of the CCP notified to its clearing members shall apply. The Authority may from time to time, specify more granular netting sets than laid out by the CCP; and

~~(e) the Authority may from time to time, specify a risk weight higher than 20% taking into account, among other things, the creditworthiness of the clearing members of the CCP^{418A}. The Reporting Bank shall communicate any such increase in risk weight to the CCP, the financial services regulatory authority supervising the CCP or any other entity performing the calculation of K_{CCP}.~~

[MAS Notice 637 (Amendment) 2016]

⁴¹⁷ This ensures that the collateral posted by the client and held at the CCP cannot be used to offset the CCP's exposures to clearing members' proprietary activity in the calculation of K_{CCP}.

[MAS Notice 637 (Amendment) 2016]

[MAS Notice 637 (Amendment No. 3) 2021]

⁴¹⁸ [Deleted by MAS Notice 637 (Amendment No. 3) 2021]

^{418A} An increase in such risk weight may be considered if, for example, the clearing members in a CCP are not highly rated.

[MAS Notice 637 (Amendment No. 3) 2021]

3.8 For the purpose of paragraph 3.6(b) of this Annex –

- (a) EAD_i for derivative transactions is calculated using the SA-CCR in accordance with Annex 70 as the bilateral trade exposure the CCP has against the clearing member ⁴¹⁹~~‘i’~~;

(b) in applying the SA-CCR –

(i) a margin period of risk of 10 business days shall apply. To avoid doubt, the 20 business days floor on the margin period of risk for netting sets where the number of trades exceeds 5,000 at any point in a quarter, does not apply; and

(ii) All collateral held by the CCP to which the CCP has a legal claim in the event of the default of clearing member ‘i’ or its client, including default fund contributions of clearing member ‘i’, may be used to offset the CCP’s exposure to clearing member ‘i’ or its client through inclusion in the multiplier set out in paragraph 3.1 of Annex 70; and

~~(b)~~ EAD_i for SFTs is equal to $\max (EBRM_i - IM_i - DF_i; 0)$,

where –

- (i) $EBRM_i$ is the exposure value to clearing member ‘i’ before credit risk mitigation in accordance with paragraphs 1.2 to 1.4 and 1.3 of Annex 7J, and applying the standard supervisory haircuts in paragraphs 2.1 and 2.4, in of Annex 7J of Part VII for SFTs. For the purposes of this calculation, variation margin that has been exchanged (before the margin called on the final margin call of that day) enters into the mark-to-market value of the transactions;
- (ii) IM_i is the initial margin collateral posted by the clearing member ‘i’ with the CCP; and
- (iii) DF_i is the prefunded default fund contribution by the clearing member ‘i’ that will be applied upon the default of the clearing member, either along with or immediately following the initial margin posted by the clearing member, to reduce the CCP’s loss.

[MAS Notice 637 (Amendment) 2016]

[MAS Notice 637 (Amendment No. 3) 2021]

Calculation of the Capital Requirement for a Reporting Bank’s default fund exposures to a CCP-each of the CCP’s Clearing Members

⁴¹⁹ ~~[Deleted by MAS Notice 637 (Amendment No. 3) 2021] A margin period of risk of 10 business days shall be used to calculate the CCP’s potential future exposure to its clearing members on derivative transactions.~~

~~[MAS Notice 637 (Amendment) 2016]~~

3.9 ~~The A~~ Reporting Bank shall calculate its capital requirement ~~Bank's capital requirement~~ for default fund exposures to a CCP ~~shall be calculated~~ in accordance with the following formula, where a 2% risk weight floor is applied to the default fund exposure⁴²⁰:

$$K_{CM(Bank)} = \max \left(K_{CCP} \times \frac{DF_{CM(Bank)}^{pref}}{DF_{CCP} + DF_{CM}^{pref}}; 8\% \times 2\% \times DF_{CM(Bank)}^{pref} \right)$$

where –

- (a) $K_{CM(Bank)}$ is the Reporting Bank's capital requirement for default fund exposures to the CCP;
- (b) DF_{CM}^{pref} is the total prefunded default fund contributions from all clearing members;
- (c) DF_{CCP} is the CCP's prefunded own resources, comprising including contributed capital, ~~and~~ retained earnings and other resources approved by the financial services regulatory authority supervising the CCP, which are contributed to the default waterfall, where these are junior or pari passu to prefunded default fund contributions of the CCP's clearing members ; and
- (d) $DF_{CM(Bank)}^{pref}$ is the prefunded default fund contribution of the Reporting Bank.

[MAS Notice 637 (Amendment) 2016]

[MAS Notice 637 (Amendment No. 3) 2021]

3.10 [Deleted by MAS Notice 637 (Amendment) 2016]

3.11 [Deleted by MAS Notice 637 (Amendment) 2016]

3.12 [Deleted by MAS Notice 637 (Amendment) 2016]

3.13 A Reporting Bank need not subject its exposures for collateral posted as default fund contributions to a qualifying CCP to haircuts for the purposes of calculating the Reporting Bank's capital requirements for default fund exposures to the CCP as defined in paragraph 3.9 of this Annex.

[MAS Notice 637 (Amendment No. 3) 2021]

[Section 4 deleted by MAS Notice 637 (Amendment No. 3) 2021]

⁴²⁰ [Deleted by MAS Notice 637 (Amendment No. 3) 2021] Under this approach, a 2% risk weight floor is applied to the default fund exposure.

[MAS Notice 637 (Amendment) 2016]

Section 4: Transitional Arrangements

~~4.1 This Annex shall not apply to a Reporting Bank for the period from 1 January 2017 to—~~

~~(a) 31 December 2021 (both dates inclusive); or~~

~~(b) one day before the day where the Reporting Bank has pursuant to paragraph 4.3 elected to comply with this Annex (both dates inclusive),~~

~~whichever occurs first.~~

~~[MAS Notice 637 (Amendment) 2016]~~

~~[MAS Notice 637 (Amendment) 2021]~~

~~4.2 A Reporting Bank referred to in paragraph 4.1 of this Annex shall continue to comply with Annex 7AJ of MAS 637, including all definitions used in Annex 7AJ which are set out in Part II of this Notice, in force immediately before 1 January 2017 during the period referred to in paragraph 4.1 of this Annex.~~

~~[MAS Notice 637 (Amendment) 2016]~~

~~4.3 Notwithstanding paragraphs 4.1 and 4.2 of this Annex, a Reporting Bank may elect to comply with this Annex at any time before the expiry of the period referred to in paragraph 4.1 of this Annex. When a Reporting Bank elects to comply with this Annex, the Reporting Bank shall give the Authority notice in writing of the date from which the Reporting Bank elects to comply with this Annex (the "election date"), no less than 30 days before the election date and in that event, paragraph 4.1 shall not apply to the Reporting Bank from the election date.~~

~~[MAS Notice 637 (Amendment) 2016]~~

~~4.4 For the avoidance of doubt, these transitional arrangements are intended to apply wherever Annex 7AJ is referenced in this Notice.~~

~~[MAS Notice 637 (Amendment) 2016]~~

⁴²¹ [Deleted by MAS Notice 637 (Amendment) 2016]

^{421A} [Deleted by MAS Notice 637 (Amendment) 2016]

⁴²² [Deleted by MAS Notice 637 (Amendment) 2016]

Amendments to Part XI: Public Disclosure Requirements

Division 1: Introduction

Guiding principles for disclosures

Amendment to paragraph 11.1.2

11.1.2 A Reporting Bank should apply the following principles in making its disclosures:

- (a) Disclosures should be clear. A Reporting Bank should present the disclosures in a form that is understandable and communicate the disclosures through an accessible medium. A Reporting Bank should highlight important messages which should be easily located. A Reporting Bank should explain complex issues in simple language with key terms defined. A Reporting Bank should present related risk information together;
- (b) Disclosures should be comprehensive. A Reporting Bank should disclose its main activities and all significant risks, supported by relevant data and information. A Reporting Bank should describe significant changes in risk exposures between reporting periods, together with the management's response. A Reporting Bank should provide sufficient qualitative and quantitative information on its processes and procedures for identifying, measuring and managing those risks. The level of detail of such disclosures should be proportionate to the complexity of the Reporting Bank. A Reporting Bank's disclosures should reflect how the Board and senior management internally assess and manage risks and strategy, helping users to better understand the risk tolerance or appetite of the Reporting Bank;
- (c) Disclosures should provide meaningful or relevant information to users. A Reporting Bank should highlight its most significant current and emerging risks and how these risks are managed, including information that is likely to receive market attention; and
- (d) Disclosures should be consistent over time. This is to enable users to identify trends in the risk profile of a Reporting Bank across all significant aspects of its business. A Reporting Bank should highlight and explain additions, deletions and important changes in disclosures from previous reports, including those arising from the Reporting Bank's specific, regulatory or market developments.

[MAS Notice 637 (Amendment No. 3) 2021]

These principles aim to strengthen the transparency and quality of risk disclosures that will enable users to better understand and compare a Reporting Bank's business and its risks.

Division 3: Specific Disclosure Requirements

Sub-division 2: Overview of key prudential metrics, risk management and RWA

Amendments to Table 11-3B

Table 11-3B: Overview of RWA

Purpose	To provide an overview of total RWA and further breakdowns of RWA.
Scope of application	This table is mandatory for all Reporting Banks.
Content	RWA and capital requirements under Pillar 1.
Frequency	Quarterly
Format	Fixed
Accompanying narrative	A Reporting Bank shall supplement the table with a narrative commentary identifying and explaining the drivers behind differences in current and prior quarterly reporting periods, where such differences are significant. The Reporting Bank shall explain in the narrative commentary the adjustments made where minimum capital requirements in column (c) do not correspond to the RWA in column (a) multiplied by the minimum Total CAR requirement applicable to the Reporting Bank as defined in paragraph 4.1.4. If the Reporting Bank uses the IMM to calculate the credit risk-weighted exposure amount of its equity exposures, the Reporting Bank shall provide a description of the main characteristics of its internal model annually in the accompanying narrative.

		(a)	(b)	(c)
		RWA		Minimum capital requirements
		As at end of current quarter	As at end of prior quarter	As at end of current quarter
1	Credit risk (excluding CCR)			
2	of which: Standardised Approach			
3	of which: F-IRBA			
4	of which: supervisory slotting approach			
5	of which: A-IRBA			
6	CCR			
7	of which: SA-CCR*			

8	of which: CCR internal models method			
9	of which: other CCR			
9a	of which: CCP			
10	CVA			
11	Equity exposures under the simple risk weight method			
11a	Equity exposures under the IMM			
12	Equity investments in funds – look through approach			
13	Equity investments in funds – mandate-based approach			
14	Equity investments in funds – fall back approach			
14a	Equity investment in funds – partial use of an approach			
15	Unsettled transactions			
16	Securitisation exposures in the banking book			
17	of which: SEC-IRBA			
18	of which: SEC-ERBA, including IAA			
19	of which: SEC-SA			
20	Market risk			
21	of which: SA(MR)			
22	of which: IMA			
23	Operational risk			
24	Amounts below the thresholds for deduction (subject to 250% risk weight)			
25	Floor adjustment			
26	Total			

* For reporting periods ending on or before 31 December 2021 ~~during the period referred to in paragraph 5.1 of Annex 70~~, depending on the approach used for Pillar 1, the Reporting Bank shall state either “SA-CCR” or “Current Exposure Method”, whichever is applicable, as for the heading of row 7. The Reporting Bank shall state “SA-CCR” as the heading of row 7 for reporting periods ending on or after 1 January 2022 ~~the expiry of the period referred to in paragraph 5.1 of Annex 70~~.

[MAS Notice 637 (Amendment No. 3) 2017]

[MAS Notice 637 (Amendment) 2021]

[MAS Notice 637 (Amendment No. 3) 2021]

Sub-division 5: Counterparty credit risk

Amendments to Table 11-23

Table 11-23: Analysis of CCR Exposure by Approach

Purpose	To provide a comprehensive view of the methods used to calculate CCR regulatory requirements and the main parameters used within each method.
Scope of application	This table is mandatory for all Reporting Banks.
Content	Regulatory exposures, RWA and parameters used for RWA calculations for all exposures subject to capital requirements for CCR (excluding capital requirements for exposures to CCPs included in the calculation of CCP RWA, and capital requirements for CVA risk).
Frequency	Semi-annually
Format	Fixed
Accompanying narrative	A Reporting Bank shall explain any significant changes over the semi-annual reporting period and the key drivers of such changes.

		(a)	(b)	(c)	(d)	(d.1)	(e)	(f)
		Replacement cost	Potential future exposure	Effective EPE	Fixed beta factor, β used for computing regulatory EAD	α used for computing regulatory EAD	EAD (post-CRM)	RWA
1	SA-CCR* (for derivatives)				1.4			
2	CCR internal models method (for derivatives and SFTs)							
3	FC(SA) (for SFTs)							

		(a)	(b)	(c)	(d)	(d.1)	(e)	(f)
		Replacement cost	Potential future exposure	Effective EPE	Fixed beta factor, β used for computing regulatory EAD	α used for computing regulatory EAD	EAD (post-CRM)	RWA
4	FC(CA) (for SFTs)							
5	VaR for SFTs							
6	Total							

* For reporting periods ending on or before 31 December 2021 ~~during the period referred to in paragraph 5.1 of Annex 70~~, depending on the approach used for Pillar 1, the Reporting Bank shall state either "SA-CCR" or "Current Exposure Method", whichever is applicable, as the heading of row 1. If the Reporting Bank states "Current Exposure Method" as the heading of row 1, the Reporting Bank shall omit column (d) and rename column (d.1) as column (d). The Reporting Bank shall state "SA-CCR" as the heading of row 1 for reporting periods ending on or after 1 January 2022 ~~the expiry of the period referred to in paragraph 5.1 of Annex 70~~.

[MAS Notice 637 (Amendment) 2021]
[\[MAS Notice 637 \(Amendment No. 3\) 2021\]](#)

Sub-division 10: Remuneration

Amendments to Table 11-44

Table 11-44: Remuneration Policy

Purpose	Describe a Reporting Bank's remuneration policy as well as key features of the remuneration system to allow meaningful assessments by users of Pillar 3 data of banks' compensation practices.
Scope of application	The template is mandatory for all Reporting Banks.
Content	Qualitative information
Frequency	Annual. If it is not possible to disclose the table together with annual financial statements, it should be disclosed as soon as possible thereafter and no later than 4 months after the end of each financial year.
Format	Flexible

⁸⁰⁵ [Deleted by MAS Notice 637 (Amendment No. 3) 2017]

⁸⁰⁶ [Deleted by MAS Notice 637 (Amendment No. 3) 2017]

Reporting Banks must describe the main elements of their remuneration system and how they develop this system. In particular, the following elements, where relevant, must be described:	
(a)	Information relating to the bodies that oversee remuneration. Disclosures must include: <ul style="list-style-type: none"> (i) the name, composition and mandate of the main body overseeing remuneration; (ii) the external consultants whose advice have been sought, the body by which they were commissioned, and in what areas of the remuneration process; (iii) a description of the scope of the <u>Reporting Bank</u>'s remuneration policy^{806A}, including the extent to which it is applicable to foreign subsidiaries and branches; and (iv) a description of the types of employees considered as material risk-takers and as senior managers.
(b)	Information relating to the design and structure of remuneration processes. Disclosures must include: <ul style="list-style-type: none"> (i) the key features and objectives of remuneration policy; (ii) whether the remuneration committee reviewed the firm's remuneration policy during the past year, and if so, an overview of any changes that were made, the reasons for those changes and their impact on remuneration; and (iii) a description of how the <u>Reporting Bank</u> ensures that risk and compliance employees are remunerated independently of the businesses they oversee.
(c)	Description of the ways in which current and future risks are taken into account in the remuneration processes. Disclosures must include a description of the key risks, their measurement and how these measures affect remuneration.
(d)	Description of the ways in which the <u>Reporting Bank</u> seeks to link performance during a performance measurement period with levels of remuneration. Disclosures should include: <ul style="list-style-type: none"> (i) a description of main performance metrics for <u>the Reporting Bank</u>, top-level business lines and individuals; (ii) a description of how amounts of individual remuneration are linked to bank-wide and individual performance; and (iii) a description of the measures the <u>Reporting Bank</u> will implement to adjust remuneration in the event that performance metrics are weak, including the <u>Reporting Bank</u>'s criteria for determining "weak" performance metrics.
(e)	Description of the ways in which the <u>Reporting Bank</u> seeks to adjust remuneration to take account of longer-term performance. Disclosures should include: <ul style="list-style-type: none"> (i) a description of the <u>Reporting Bank</u>'s policy on deferral and vesting of variable remuneration and, if the fraction of variable remuneration that is deferred differs across employees or groups of employees, a description of the factors that determine the fraction and their relative importance; and

^{806A} For example, by regions or business lines.

	(ii) a description of the Reporting Bank 's policy and criteria for adjusting deferred remuneration before vesting and after vesting through clawback arrangements.
(f)	<p>Description of the different forms of variable remuneration that the Reporting Bank utilises and the rationale for using these different forms. Disclosures should include:</p> <ul style="list-style-type: none"> (i) a description of the forms of variable remuneration offered (i.e. cash, shares and share-linked instruments and other forms); and (ii) a description of the use of the different forms of variable remuneration and, if the mix of different forms of variable remuneration differs across employees or groups of employees), a description of the factors that determine the mix and their relative importance.

[MAS Notice 637 (Amendment No. 3) 2017]

[\[MAS Notice 637 \(Amendment No. 3\) 2021\]](#)

Sub-division 13: Macroprudential Supervisory Measures

Amendment to Table 11-46

Table 11-46: Geographical Distribution of Credit Exposures Used in the Countercyclical Capital Buffer

Purpose	To provide an overview of the geographical distribution of private sector credit exposures relevant for the calculation of the countercyclical buffer.
Scope of application	The template is mandatory for all Reporting Banks subject to a countercyclical buffer requirement based on the jurisdictions in which they have private sector credit exposures subject to a countercyclical buffer requirement compliant with the Basel standards. Only <u>a Reporting Banks</u> with exposures to jurisdictions in which the countercyclical buffer rate is higher than zero must disclose this template set out in Table 11-46.
Content	Private sector credit exposures and other relevant inputs necessary for the computation of the bank-specific countercyclical buffer requirement.
Frequency	Semi-annual
Format	Flexible
Accompanying narrative	For the purposes of the countercyclical buffer, Reporting Banks should use, where possible, exposures on an “ultimate risk” basis. They should disclose the methodology of geographical allocation used, and explain the jurisdictions or types of exposures for which the ultimate risk method is not used as a basis for allocation. The allocation of exposures to jurisdictions should be made taking into consideration the <i>Frequently asked questions on the Basel III countercyclical capital buffer, October 2015</i> ^{812A} and any other clarifications provided by BCBS. Information about the drivers for changes in the exposure amounts and the applicable jurisdiction-specific rates must be summarised.

	(a)	(b)	(c)	(d)
Geographical breakdown	Country-specific countercyclical buffer requirement	RWA for private sector credit exposures used in the computation of the countercyclical buffer	Bank-specific countercyclical buffer requirement	Countercyclical buffer amount
(Home) Country 1				
Country 2				
Country 3				
...				
Country N				
Sum				

^{812A} www.bis.org/bcbs/publ/d339.pdf

Total				
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[MAS Notice 637 (Amendment No. 3) 2021]

Amendments to Table 11-46A

Table 11-46A: Explanatory Notes to Geographical Distribution of Credit Exposures Used in the Countercyclical Capital Buffer

Definitions	
(a)	<i>RWA for private sector credit exposures</i> : This is in accordance with paragraph 4.1.16(b).
(b)	<i>Country</i> : Country in which the Reporting Bank has relevant private sector credit exposures, and which has set a countercyclical capital buffer rate greater than zero that was applicable during the reporting period covered by the template set out in Table 11-46.
(c)	<i>Sum</i> : Sum of RWA for private sector credit exposures, in jurisdictions with a non-zero countercyclical buffer rate.
(d)	<i>Country-specific Countercyclical buffer requirement</i> : This is the requirement that is applicable at the reporting date, calculated in accordance with paragraph 4.1.16(a).
(e)	<i>Bank-specific countercyclical buffer requirement</i> : This is in accordance with paragraph 4.1.15.
(f)	<i>Total</i> : Total of RWA for private sector credit exposures, across all jurisdictions to which the Reporting Bank is exposed, including jurisdictions with no countercyclical buffer rate or with a countercyclical buffer rate set at zero, and value of the bank-specific countercyclical capital buffer rate and resulting countercyclical buffer amount.
(g)	<i>Countercyclical capital buffer amount</i> : amount of CET1 Capital held to meet the countercyclical capital buffer requirement determined in accordance with paragraphs 4.1.14 to 4.1.20.
Linkages across tables	
(h)	Amount in [Table 11-46:Total/c] is equal to [Table 11-1A:9/a] for the semi-annual disclosure of Table 11-1A, and to [Table 11-1A:9/b] in the quarterly disclosure of Table 11-1A.
(i)	Amount in [Table 11-46:Total/c] is equal to [11B-2:66/a].

[MAS Notice 637 (Amendment No. 2) 2018]

[MAS Notice 637 (Amendment No. 3) 2021]

COMPOSITION OF CAPITAL

Amendment to Table 11B-1

Table 11B-1: Composition of Regulatory Capital

Purpose	To provide a breakdown of the constituent elements of a Reporting Bank's capital.
Scope of application	The table is mandatory for all Reporting Banks at the consolidated level.
Content	Breakdown of regulatory capital according to the scope of regulatory consolidation.
Frequency	Semi-annually
Format	Fixed
Accompanying narrative	A Reporting Bank shall explain any significant changes over the semi-annual reporting period and the key drivers of such changes.

		(a)	(b)
		Amount	Source based on reference numbers/letters of the balance sheet under the regulatory scope of consolidation
Common Equity Tier 1 capital: instruments and reserves			
1	Paid-up ordinary shares and share premium (if applicable)		(g)
2	Retained earnings		
3 [#]	Accumulated other comprehensive income and other disclosed reserves		
4	<i>Directly issued capital subject to phase out from CET1 (only applicable to non-joint stock companies)</i>		
5	Minority interest that meets criteria for inclusion		
6	Common Equity Tier 1 capital before regulatory adjustments		
Common Equity Tier 1 capital: regulatory adjustments			
7	Valuation adjustment pursuant to Part VIII of MAS Notice 637		

8	Goodwill, net of associated deferred tax liability		(a) minus (d)
9 [#]	Intangible assets, net of associated deferred tax liability		(b) minus (e)
10 [#]	Deferred tax assets that rely on future profitability		
11	Cash flow hedge reserve		
12	Shortfall of TEP relative to EL under IRBA		
13	Increase in equity capital resulting from securitisation transactions		
14	Unrealised fair value gains/losses on financial liabilities and derivative liabilities arising from changes in own credit risk		
15	Defined benefit pension fund assets, net of associated deferred tax liability		
16	Investments in own shares		
17	Reciprocal cross-holdings in ordinary shares of financial institutions		
18	Investments in ordinary shares of unconsolidated financial institutions in which the Reporting Bank does not hold a major stake		
19	Investments in ordinary shares of unconsolidated financial institutions in which the Reporting Bank holds a major stake (including insurance subsidiaries) (amount above 10% threshold)		
20 [#]	Mortgage servicing rights (amount above 10% threshold)		(c) minus (f) minus 10% threshold
21 [#]	Deferred tax assets arising from temporary differences (amount above 10% threshold, net of associated deferred tax liability)		
22	Amount exceeding the 15% threshold		
23	of which: investments in ordinary shares of unconsolidated financial institutions in which the Reporting Bank holds a major stake (including insurance subsidiaries)		

24 [#]	of which: mortgage servicing rights		
25 [#]	of which: deferred tax assets arising from temporary differences		
26	National specific regulatory adjustments		
26A	PE/VC investments held beyond the relevant holding periods set out in MAS Notice 630		
26B	Capital deficits in subsidiaries and associates that are regulated financial institutions		
26C	Any other items which the Authority may specify		
27	Regulatory adjustments applied in calculation of CET1 Capital due to insufficient AT1 Capital to satisfy required deductions		
28	Total regulatory adjustments to CET1 Capital		
29	Common Equity Tier 1 capital (CET1)		
Additional Tier 1 capital: instruments			
30	AT1 capital instruments and share premium (if applicable)		(h)
31	of which: classified as equity under the Accounting Standards		
32	of which: classified as liabilities under the Accounting Standards		
33	<i>Transitional: Ineligible capital instruments (pursuant to paragraphs 6.5.3 and 6.5.4)</i>		
34	AT1 capital instruments issued by fully-consolidated subsidiaries that meet criteria for inclusion		
35	<i>of which: instruments issued by subsidiaries subject to phase out</i>		
36	Additional Tier 1 capital before regulatory adjustments		
Additional Tier 1 capital: regulatory adjustments			
37	Investments in own AT1 capital instruments		
38	Reciprocal cross-holdings in AT1 capital instruments of financial institutions		
39	Investments in AT1 capital instruments of unconsolidated		

	financial institutions in which the Reporting Bank does not hold a major stake		
40	Investments in AT1 capital instruments of unconsolidated financial institutions in which the Reporting Bank holds a major stake (including insurance subsidiaries)		
41	National specific regulatory adjustments which the Authority may specify		
42	Regulatory adjustments applied in calculation of AT1 Capital due to insufficient Tier 2 Capital to satisfy required deductions		
43	Total regulatory adjustments to Additional Tier 1 capital		
44	Additional Tier 1 capital (AT1)		
45	Tier 1 capital (T1 = CET1 + AT1)		
Tier 2 capital: instruments and provisions			
46	Tier 2 capital instruments and share premium (if applicable)		
47	<i>Transitional: Ineligible capital instruments (pursuant to paragraphs 6.5.3 and 6.5.4)</i>		
48	Tier 2 capital instruments issued by fully-consolidated subsidiaries that meet criteria for inclusion		
49	<i>of which: instruments issued by subsidiaries subject to phase out</i>		
50	Provisions		
51	Tier 2 capital before regulatory adjustments		
Tier 2 capital: regulatory adjustments			
52	Investments in own Tier 2 instruments		
53	Reciprocal cross-holdings in Tier 2 capital instruments of financial institutions		
54	Investments in Tier 2 capital instruments and other TLAC liabilities of unconsolidated financial institutions in which the Reporting Bank does not hold a major stake		

54a [#]	Investments in other TLAC liabilities of unconsolidated financial institutions in which the Reporting Bank does not hold a major stake: amount previously designated for the 5% threshold but that no longer meets the conditions		
55	Investments in Tier 2 capital instruments and other TLAC liabilities of unconsolidated financial institutions in which the Reporting Bank holds a major stake (including insurance subsidiaries)		
56	National specific regulatory adjustments which the Authority may specify		
57	Total regulatory adjustments to Tier 2 capital		
58	Tier 2 capital (T2)		
59	Total capital (TC = T1 + T2)		
60	Floor-adjusted total risk weighted assets		
Capital ratios (as a percentage of floor-adjusted risk weighted assets)			
61	Common Equity Tier 1 CAR		
62	Tier 1 CAR		
63	Total CAR		
64	Bank-specific buffer requirement		
65	of which: capital conservation buffer requirement		
66	of which: bank-specific countercyclical buffer requirement		
67	of which: G-SIB and/or D-SIB buffer requirement (if applicable)		
68	Common Equity Tier 1 available after meeting the Reporting Bank's minimum capital requirements		
National minima			
69	Minimum CET1 CAR		
70	Minimum Tier 1 CAR		
71	Minimum Total CAR		
Amounts below the thresholds for deduction (before risk weighting)			
72	Investments in ordinary shares, AT1 capital, Tier 2 capital and other TLAC liabilities of unconsolidated financial institutions in which the		

	Reporting Bank does not hold a major stake		
73	Investments in ordinary shares of unconsolidated financial institutions in which the Reporting Bank holds a major stake (including insurance subsidiaries)		
74	Mortgage servicing rights (net of associated deferred tax liability)		
75	Deferred tax assets arising from temporary differences (net of associated deferred tax liability)		
Applicable caps on the inclusion of provisions in Tier 2			
76	Provisions eligible for inclusion in Tier 2 in respect of exposures subject to standardised approach (prior to application of cap)		
77	Cap on inclusion of provisions in Tier 2 under standardised approach		
78	Provisions eligible for inclusion in Tier 2 in respect of exposures subject to internal ratings-based approach (prior to application of cap)		
79	Cap for inclusion of provisions in Tier 2 under internal ratings-based approach		
Capital instruments subject to phase-out arrangements (only applicable between 1 Jan 2013 and 1 Jan 2022)			
80	<i>Current cap on CET1 instruments subject to phase out arrangements</i>		
81	<i>Amount excluded from CET1 due to cap (excess over cap after redemptions and maturities)</i>		
82	<i>Current cap on AT1 instruments subject to phase out arrangements</i>		
83	<i>Amount excluded from AT1 due to cap (excess over cap after redemptions and maturities)</i>		
84	<i>Current cap on T2 instruments subject to phase out arrangements</i>		
85	<i>Amount excluded from T2 due to cap (excess over cap after redemptions and maturities)</i>		

Items marked with a hash [#] are elements where a more conservative definition has been applied relative to those set out under the Basel III capital standards.

[MAS Notice 637 (Amendment No. 3) 2017]

[MAS Notice 637 (Amendment No. 2) 2018]

[\[MAS Notice 637 \(Amendment No. 3\) 2021\]](#)

MAIN FEATURES OF REGULATORY CAPITAL INSTRUMENTS

Amendments to Table 11D-2

Table 11D-2: Explanatory Notes to Main Features of Regulatory Capital Instruments

Explanatory Notes	
1	Identifies issuer legal entity. <i>Free text</i>
2	Unique identifier (e.g. CUSIP, ISIN or Bloomberg identifier for private placement) <i>Free text</i>
3	Specifies the governing law(s) of the instrument <i>Free text</i>
4	Specifies the regulatory capital treatment during the Basel III transitional Basel III phase (i.e. the component of capital that the instrument is being phased-out from). <i>Select from menu: [Common Equity Tier 1] [Additional Tier 1] [Tier 2]</i>
5	Specifies regulatory capital treatment under Basel III rules not taking into account transitional treatment. <i>Select from menu: [Common Equity Tier 1] [Additional Tier 1] [Tier 2] [Ineligible]</i>
6	Specifies the level(s) within the group at which the instrument is included in capital. <i>Select from menu: [Solo] [Group] [Solo and Group]</i>
7	Specifies instrument type, varying by jurisdiction. Helps provide more granular understanding of features, particularly during transition. <i>Select from menu: menu options to be provided to banks by each jurisdiction</i>
8	Specifies amount recognised in regulatory capital. <i>Free text</i>
9	Par value of instrument <i>Free text</i>
10	Specifies accounting classification. Helps to assess loss absorbency. <i>Select from menu: [Shareholders' equity] [Liability – amortised cost] [Liability – fair value option] [Non-controlling interest in consolidated subsidiary]</i>
11	Specifies date of issuance. <i>Free text</i>
12	Specifies whether dated or perpetual. <i>Select from menu: [Perpetual] [Dated]</i>
13	For dated instrument, specifies original maturity date (day, month and year). For perpetual instrument put “no maturity”. <i>Free text</i>
14	Specifies whether there is an issuer call option. <i>Select from menu: [Yes] [No]</i>

15	For instrument with issuer call option, specifies (i) first date of call if the instrument has a call option on a specific date (day, month and year); (ii) if the instrument has a tax and/or regulatory event call; and (iii) the redemption price. <i>Free text</i>
16	Specifies the existence and frequency of subsequent call dates, if applicable. <i>Free text</i>
17	Specifies whether the coupon/dividend is fixed over the life of the instrument, floating over the life of the instrument, currently fixed but will move to a floating rate in the future, currently floating but will move to a fixed rate in the future. <i>Select from menu: [Fixed], [Floating] [Fixed to floating], [Floating to fixed]</i>
18	Specifies the coupon rate of the instrument and any related index that the coupon/dividend rate references. <i>Free text</i>
19	Specifies whether the non payment of a coupon or dividend on the instrument prohibits the payment of dividends on common shares (ie whether there is a dividend stopper). <i>Select from menu: [yes], [no]</i>
20	Specifies whether the issuer has full discretion, partial discretion or no discretion over whether a coupon/dividend is paid. If the Reporting Bank has full discretion to cancel coupon/dividend payments under all circumstances it must select "fully discretionary" (including when there is a dividend stopper that does not have the effect of preventing the Reporting Bank from cancelling payments on the instrument). If there are conditions that must be met before payment can be cancelled (e.g. capital below a certain threshold), the Reporting Bank must select "partially discretionary". If the Reporting Bank is unable to cancel the payment outside of insolvency the Reporting Bank must select "mandatory". <i>Select from menu: [Fully discretionary] [Partially discretionary] [Mandatory]</i>
21	Specifies whether there is a step-up or other incentive to redeem. <i>Select from menu: [Yes] [No]</i>
22	Specifies whether dividends / coupons are cumulative or noncumulative. <i>Select from menu: [Noncumulative] [Cumulative]</i>
23	Specifies whether instrument is convertible or not. <i>Select from menu: [Convertible] [Nonconvertible]</i>
24	Specifies the conditions under which the instrument will convert, including point of non-viability. Where one or more authorities have the ability to trigger conversion, the authorities should be listed. For each of the authorities it should be stated whether the legal basis for the authority to trigger conversion is provided by the terms of the contract of the instrument (a contractual approach) or statutory means (a statutory approach). <i>Free text</i>
25	For conversion trigger separately, specifies whether the instrument will: (i) always convert fully; (ii) may convert fully or partially; or (iii) will always convert partially <i>Free text referencing one of the options above</i>
26	Specifies rate of conversion into the more loss absorbent instrument. <i>Free text</i>

27	For convertible instruments, specifies whether conversion is mandatory or optional. <i>Select from menu: [Mandatory] [Optional] [NA]</i>
28	For convertible instruments, specifies instrument type convertible into. <i>Select from menu: [Common Equity Tier 1] [Additional Tier 1] [Tier 2] [Other]</i>
29	If convertible, specify issuer of instrument into which it converts. <i>Free text</i>
30	Specifies whether there is a write down feature. <i>Select from menu: [Yes] [No]</i>
31	Specifies the trigger at which write-down occurs, including point of non-viability. Where one or more authorities have the ability to trigger write-down, the authorities should be listed. For each of the authorities it should be stated whether the legal basis for the authority to trigger write-down is provided by the terms of the contract of the instrument (a contractual approach) or statutory means (a statutory approach). <i>Free text</i>
32	For each write-down trigger separately, specifies whether the instrument will: (i) always be written down fully; (ii) may be written down partially; or (iii) will always be written down partially. <i>Free text referencing one of the options above</i>
33	For write down instrument, specifies whether write down is permanent or temporary. <i>Select from menu: [Permanent] [Temporary] [NA]</i>
34	For instrument that has a temporary write-down, description of write-up mechanism. <i>Free text</i>
35	Specifies instrument to which it is most immediately subordinate. Where applicable, the Reporting Banks should specify the column numbers of the instruments in the completed Table 11D-1 to which the instrument is most immediately subordinate. In the case of structural subordination, "NA" should be entered. <i>Free text</i>
36	Specifies whether there are non-compliant features. <i>Select from menu: [Yes] [No]</i>
37	If there are non-compliant features, asks the Reporting Bank/institution to specify which ones. <i>Free text</i>

[MAS Notice 637 (Amendment No. 3) 2017]

[MAS Notice 637 (Amendment No. 3) 2021]

DISCLOSURE TEMPLATE DURING THE TRANSITION PERIOD

Amendment to Table 11E

Table 11E: Disclosure Template to be used during the transition period

		Amount	Amount subject to Pre-Basel III Treatment
	Common Equity Tier 1 capital: instruments and reserves		
1	Paid-up ordinary shares and share premium (if applicable)		
2	Retained earnings		
3 [#]	Accumulated other comprehensive income and other disclosed reserves		
4	Directly issued capital subject to phase out from CET1 (only applicable to non-joint stock companies)		
5	Minority interest that meets criteria for inclusion		
6	Common Equity Tier 1 capital before regulatory adjustments		
	Common Equity Tier 1 capital: regulatory adjustments		
7	Valuation adjustment pursuant to Part VIII of MAS Notice 637		
8	Goodwill, net of associated deferred tax liability	\$20 million	\$80 million
9 [#]	Intangible assets, net of associated deferred tax liability		
10 [#]	Deferred tax assets that rely on future profitability		
11	Cash flow hedge reserve		
12	Shortfall of TEP relative to EL under IRBA		
13	Increase in equity capital resulting from securitisation transactions		
14	Unrealised fair value gains/losses on financial liabilities and derivative liabilities arising from changes in own credit risk		
15	Defined benefit pension fund assets, net of associated deferred tax liability		
16	Investments in own shares		
17	Reciprocal cross-holdings in ordinary shares of financial institutions		
18	Investments in ordinary shares of unconsolidated financial institutions in which the Reporting Bank does not hold a major stake		

19	Investments in ordinary shares of unconsolidated financial institutions in which the Reporting Bank holds a major stake (including insurance subsidiaries) (amount above 10% threshold)		
20 [#]	Mortgage servicing rights (amount above 10% threshold)		
21 [#]	Deferred tax assets arising from temporary differences (amount above 10% threshold, net of related tax liability)		
22	Amount exceeding the 15% threshold		
23	of which: investments in ordinary shares of unconsolidated financial institutions in which the Reporting Bank holds a major stake (including insurance subsidiaries)		
24 [#]	of which: mortgage servicing rights		
25 [#]	of which: deferred tax assets arising from temporary differences		
26	National specific regulatory adjustments		
26A	PE/VC investments held beyond the relevant holding periods set out in MAS Notice 630		
26B	Capital deficits in subsidiaries and associates that are regulated financial institutions		
26C	Any other items which the Authority may specify		
27	Regulatory adjustments applied in calculation of CET1 Capital due to insufficient AT1 Capital to satisfy required deductions		
28	Total regulatory adjustments to CET1 Capital		
29	Common Equity Tier 1 capital (CET1)		
	Additional Tier 1 capital: instruments		
30	AT1 capital instruments and share premium (if applicable)		
31	of which: classified as equity under the Accounting Standards		
32	of which: classified as liabilities under the Accounting Standards		
33	Transitional: Ineligible capital instruments (pursuant to paragraphs 6.5.3 and 6.5.4)		
34	AT1 capital instruments issued by fully-consolidated subsidiaries that meet criteria for inclusion		
35	of which: instruments issued by subsidiaries subject to phase out		
36	Additional Tier 1 capital before regulatory adjustments		
	Additional Tier 1 capital: regulatory adjustments		
37	Investments in own AT1 capital instruments		

38	Reciprocal cross-holdings in AT1 capital instruments of financial institutions		
39	Investments in AT1 capital instruments of unconsolidated financial institutions in which the Reporting Bank does not hold a major stake		
40	Investments in AT1 capital instruments of unconsolidated financial institutions in which the Reporting Bank holds a major stake (including insurance subsidiaries)		
41	National specific regulatory adjustments		
41A	Regulatory adjustments applied to AT1 Capital in respect of amounts subject to pre-Basel III treatment		
	of which: Goodwill, net of associated deferred tax liability	\$80 million	
	of which: Intangible assets, net of associated deferred tax liability		
	of which: Deferred tax assets that rely on future profitability		
	of which: Cash flow hedge reserve		
	of which: Increase in equity capital resulting from securitisation transactions		
	of which: Unrealised fair value gains/losses on financial liabilities and derivative liabilities arising from changes in own credit risk		
	of which: Shortfall of TEP relative to EL under IRBA		
	of which: PE/VC investments held beyond the relevant holding periods set out in MAS Notice 630		
	of which: Capital deficits in subsidiaries and associates that are regulated financial institutions		
	of which: Investments in ordinary shares of unconsolidated financial institutions in which the Reporting Bank holds a major stake (incl insurance subsidiaries)		
	of which: Investments in Tier 2 capital instruments of unconsolidated financial institutions in which the Reporting Bank holds a major stake (incl insurance subsidiaries)		
41B	Any other items which the Authority may specify		
42	Regulatory adjustments applied in calculation of AT1 Capital due to insufficient Tier 2 Capital to satisfy required deductions		
43	Total regulatory adjustments to Additional Tier 1 capital		
44	Additional Tier 1 capital (AT1)		
45	Tier 1 capital (T1 = CET1 + AT1)		
	Tier 2 capital: instruments and provisions		

46	Tier 2 capital instruments and share premium (if applicable)		
47	Transitional: Ineligible capital instruments (pursuant to paragraphs 6.5.3 and 6.5.4)		
48	Tier 2 capital instruments issued by fully-consolidated subsidiaries that meet criteria for inclusion		
49	of which: instruments issued by subsidiaries subject to phase out		
50	Provisions		
51	Tier 2 capital before regulatory adjustments		
	Tier 2 capital: regulatory adjustments		
52	Investments in own Tier 2 instruments		
53	Reciprocal cross-holdings in Tier 2 capital instruments of financial institutions		
54	Investments in Tier 2 capital instruments of unconsolidated financial institutions in which the Reporting Bank does not hold a major stake		
55	Investments in Tier 2 capital instruments of unconsolidated financial institutions in which the Reporting Bank holds a major stake (including insurance subsidiaries)		
56	National specific regulatory adjustments		
56A	Any other items which the Authority may specify		
56B	Regulatory adjustments applied to Tier 2 Capital in respect of amounts subject to pre-Basel III treatment		
	of which: Shortfall of TEP relative to EL under IRBA		
	of which: PE/VC investments held beyond the relevant holding periods set out in MAS Notice 630		
	of which: Capital deficits in subsidiaries and associates that are regulated financial institutions		
	of which: Investments in ordinary shares of unconsolidated financial institutions in which the Reporting Bank holds a major stake (incl insurance subsidiaries)		
	of which: Investments in AT1 capital instruments of unconsolidated financial institutions in which the Reporting Bank holds a major stake (incl insurance subsidiaries)		
57	Total regulatory adjustments to Tier 2 capital		
58	Tier 2 capital (T2)		
59	Total capital (TC = T1 + T2)		
60	Floor-adjusted total risk weighted assets (after incorporating the floor adjustment set out in Table 11-3A(m))		
	Capital ratios (as a percentage of floor-adjusted risk weighted assets)		

61	Common Equity Tier 1 CAR		
62	Tier 1 CAR		
63	Total CAR		
64	Bank-specific buffer requirement		
65	of which: capital conservation buffer requirement		
66	of which: bank-specific countercyclical buffer requirement		
67	of which: G-SIB buffer requirement (if applicable)		
68	Common Equity Tier 1 available to meet buffers		
	National minima		
69	Minimum CET1 CAR		
70	Minimum Tier 1 CAR		
71	Minimum Total CAR		
	Amounts below the thresholds for deduction (before risk weighting)		
72	Investments in ordinary shares, AT1 capital and Tier 2 capital of unconsolidated financial institutions in which the Reporting Bank does not hold a major stake		
73	Investments in ordinary shares of unconsolidated financial institutions in which the Reporting Bank holds a major stake (including insurance subsidiaries)		
74	Mortgage servicing rights (net of related tax liability)		
75	Deferred tax assets arising from temporary differences (net of related tax liability)		
	Applicable caps on the inclusion of provisions in Tier 2		
76	Provisions eligible for inclusion in Tier 2 in respect of exposures subject to standardised approach (prior to application of cap)		
77	Cap on inclusion of provisions in Tier 2 under standardised approach		
78	Provisions eligible for inclusion in Tier 2 in respect of exposures subject to internal ratings-based approach (prior to application of cap)		
79	Cap for inclusion of provisions in Tier 2 under internal ratings-based approach		
	Capital instruments subject to phase-out arrangements (only applicable between 1 Jan 2013 and 1 Jan 2022)		
80	Current cap on CET1 instruments subject to phase out arrangements		
81	Amount excluded from CET1 due to cap (excess over cap after redemptions and maturities)		
82	Current cap on AT1 instruments subject to phase out arrangements		

83	Amount excluded from AT1 due to cap (excess over cap after redemptions and maturities)		
84	Current cap on T2 instruments subject to phase out arrangements		
85	Amount excluded from T2 due to cap (excess over cap after redemptions and maturities)		

Items marked with a hash [#] are elements where a more conservative definition has been applied relative to those set out under the Basel III capital standards.

[\[MAS Notice 637 \(Amendment No. 3\) 2021\]](#)

Amendments to Part XII: Reporting Schedules

Amendments to Division 3

[Division 3 deleted by MAS Notice 637 (Amendment No. 3) 2021]

Division 3: Transitional Arrangements

~~12.3.1 Schedules 2-1A, 2-2A to 2-2G, 2-3A to 2-3H, 5B and 5F shall not apply to a Reporting Bank for the period from 1 January 2017 to—~~

~~(c) 31 December 2021 (both dates inclusive); or~~

~~(d) one day before the day where the Reporting Bank has elected to comply with Annex 7O and Annex 7AJ (both dates inclusive);~~

~~whichever occurs first.~~

~~[MAS Notice 637 (Amendment) 2021]~~

~~12.3.2 A Reporting Bank referred to in paragraph 12.3.1 shall continue to comply with Schedules 2-1A, 2-2A to 2-2G, 2-3A to 2-3H, 5B and 5F of MAS 637, in force immediately before 1 January 2017 during the period referred to in paragraph 12.3.1.~~

~~12.3.3 Notwithstanding paragraphs 12.3.1 and 12.3.2, a Reporting Bank may elect to comply with Annex 7O and Annex 7AJ at any time before the expiry of the period referred to in paragraph 12.3.1. When a Reporting Bank elects to comply with Annex 7O and Annex 7AJ, the Reporting Bank shall give the Authority notice in writing of the date from which the Reporting Bank elects to comply with the said Annexes (the "election date") no less than 30 days before the election date and in that event, paragraph 12.3.1 shall not apply to the Reporting Bank from the election date.~~

~~[MAS Notice 637 (Amendment) 2016]~~

Amendments to Schedule 5F

EXPOSURES TO CCPs

Name of the Reporting Bank:

Statement as at:

Scope of Reporting: Solo/Group

(In S\$ million)

1 Exposures to qualifying CCPs, calculated in accordance with paragraph 1.3 of Annex 7A)

		E/EAD	CCP RWA
(a)	CCP Trade Exposures		
(i)	CCP Trade Exposures where a Reporting Bank is a Clearing Member of a CCP		
CCP 1	<input type="text"/>	<input type="text"/>	<input type="text"/>
CCP 2	<input type="text"/>	<input type="text"/>	<input type="text"/>
CCP 3	<input type="text"/>	<input type="text"/>	<input type="text"/>
.	<input type="text"/>	<input type="text"/>	<input type="text"/>
.	<input type="text"/>	<input type="text"/>	<input type="text"/>
Sub-Total		<input type="text"/>	<input type="text"/> A
(ii)	Exposures to CCPs where a Reporting Bank is a Client of a Clearing Member or lower level client and all conditions in paragraph 2.5 of Annex 7A) are met		
CCP 1	<input type="text"/>	<input type="text"/>	<input type="text"/>
CCP 2	<input type="text"/>	<input type="text"/>	<input type="text"/>
CCP 3	<input type="text"/>	<input type="text"/>	<input type="text"/>
.	<input type="text"/>	<input type="text"/>	<input type="text"/>
.	<input type="text"/>	<input type="text"/>	<input type="text"/>
Sub-Total		<input type="text"/>	<input type="text"/> B
(iii)	Exposures to CCPs where a Reporting Bank is a Client of a Clearing Member or lower level client and all conditions in paragraph 2.5, except paragraph 2.5(a)(iii), of Annex 7A) are met		
CCP 1	<input type="text"/>	<input type="text"/>	<input type="text"/>
CCP 2	<input type="text"/>	<input type="text"/>	<input type="text"/>
CCP 3	<input type="text"/>	<input type="text"/>	<input type="text"/>
.	<input type="text"/>	<input type="text"/>	<input type="text"/>
.	<input type="text"/>	<input type="text"/>	<input type="text"/>
Sub-Total		<input type="text"/>	<input type="text"/> C
(iv)	Of which: Exposures arising from collateral posted which are 2% risk-weighted which are 4% risk-weighted	<input type="text"/> <input type="text"/>	<div>cancelled cancelled cancelled</div> <input type="text"/> D
Sub-Total		<input type="text"/>	SUM(A:C:D) <input type="text"/> E
(b)	Default Fund Exposures		
		Notional Amounts of Pre-funded Default Fund Exposures	Capital Requirements
CCP 1	<input type="text"/>	<input type="text"/>	<input type="text"/>
CCP 2	<input type="text"/>	<input type="text"/>	<input type="text"/>
CCP 3	<input type="text"/>	<input type="text"/>	<input type="text"/>
.	<input type="text"/>	<input type="text"/>	<input type="text"/>
.	<input type="text"/>	<input type="text"/>	<input type="text"/>
Sub-Total		<input type="text"/>	<input type="text"/> F

2 Exposures to non-qualifying CCPs, calculated in accordance with paragraph 1.5 of Annex 7A)

		E/EAD	CCP RWA
a.	CCP Trade exposures		
(i)	Exposures to CCPs where a Reporting Bank is a Clearing Member of a CCP		
CCP 1	<input type="text"/>	<input type="text"/>	<input type="text"/>
CCP 2	<input type="text"/>	<input type="text"/>	<input type="text"/>
CCP 3	<input type="text"/>	<input type="text"/>	<input type="text"/>
.	<input type="text"/>	<input type="text"/>	<input type="text"/>
.	<input type="text"/>	<input type="text"/>	<input type="text"/>
Sub-Total		<input type="text"/>	<input type="text"/> G
(ii)	Exposures to CCPs where a Reporting Bank is a Client of a Clearing Member of a CCP		
CCP 1	<input type="text"/>	<input type="text"/>	<input type="text"/>
CCP 2	<input type="text"/>	<input type="text"/>	<input type="text"/>
CCP 3	<input type="text"/>	<input type="text"/>	<input type="text"/>
.	<input type="text"/>	<input type="text"/>	<input type="text"/>
.	<input type="text"/>	<input type="text"/>	<input type="text"/>
Sub-Total		<input type="text"/>	<input type="text"/> H
Sub-Total		<input type="text"/>	G+H <input type="text"/> I
b.	Exposures arising from contribution to default funds		
		Pre-funded Contributions	Unfunded Contributions
CCP 1	<input type="text"/>	<input type="text"/>	<input type="text"/>
CCP 2	<input type="text"/>	<input type="text"/>	<input type="text"/>
CCP 3	<input type="text"/>	<input type="text"/>	<input type="text"/>
.	<input type="text"/>	<input type="text"/>	<input type="text"/>
.	<input type="text"/>	<input type="text"/>	<input type="text"/>
Sub-Total for Default Fund exposures to non-qualifying CCPs		<input type="text"/>	<input type="text"/> J
3	Total CCP RWA		E+F+I+J <input type="text"/>

4 Exposures to CCPs which are risk-weighted according to Subdivision 3 or Subdivision 4 of Division 1 of Part VII

		E/EAD	RWA
(i)	Exposures to CCPs where a Reporting Bank is a Client of a Clearing Member and conditions in paragraph 2.5 of Annex 7A) are not met		
CCP 1	<input type="text"/>	<input type="text"/>	<input type="text"/>
CCP 2	<input type="text"/>	<input type="text"/>	<input type="text"/>
CCP 3	<input type="text"/>	<input type="text"/>	<input type="text"/>
.	<input type="text"/>	<input type="text"/>	<input type="text"/>
.	<input type="text"/>	<input type="text"/>	<input type="text"/>
Sub-Total		<input type="text"/>	<input type="text"/>
(ii)	Of which: Exposures arising from collateral posted which are risk-weighted according to Subdivision 3 or Subdivision 4 of Division 1 of Part	<input type="text"/>	<div>cancelled</div>