Completion Instructions

Return of Capital Adequacy Ratio
Part IIIc – Risk-weighted Amount for Credit Risk
Internal Ratings-based Approach
Form MA(BS)3(IIIc)

Introduction

1. Form MA(BS)3(IIIc) ("IRB return") of Part III should be completed by each authorized institution incorporated in Hong Kong (AI) using the ***internal ratings-based approach*** (***IRB approach***) to calculate ***credit risk*** under Part 6 of the Banking (Capital) Rules.

2. These completion instructions contain the following four sections:

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3. Section A gives the general instructions and definitions for the reporting of the IRB return. Section B provides the specific instructions for calculating the ***risk-weighted amount*** for each ***IRB class/subclass*** under the IRB approach. Section C explains the calculation of ***total EL amount*** and ***total eligible provisions*** and the capital treatment for the difference between these two items under the IRB approach. Section D explains the specific reporting instructions for each reporting form, with illustrative examples provided in **Annex IIIc-A**.

4. This return and its completion instructions should be read in conjunction with the Rules and the relevant supervisory policy/guidance on the revised capital adequacy framework.

Section A: General Instructions

I. Scope of the IRB Return

5. An AI is required to report in this return its credit ***exposures*** subject to the IRB approach, including:

   (a) all of the AI's on-balance sheet exposures and off-balance sheet exposures booked in its ***banking book***, except for exposures that are required to be deducted from any of the AI's ***Common Equity Tier 1 capital*** (***CET1 capital***), ***Additional Tier 1 capital*** and ***Tier 2 capital***[1], exposures to a ***central counterparty*** (***CCP***)[2] and ***securitization exposures***[3];

   (b) all of the AI's exposures to counterparties –

      (i) under ***derivative contract***s or ***securities financing transaction***s (***SFT***s) booked in an AI's ***trading book***; or

      (ii) in respect of assets that are –

         - posted by the AI as collateral for transactions or contracts booked in its trading book; and

         - in respect of ***unsegregated collateral*** posted by the AI for transactions or contracts booked in its trading book,

      except for exposures that are subject to deduction from any of the AI's CET1 capital, Additional Tier 1 capital and Tier 2 capital and exposures to a CCP.

6. Subject to the Monetary Authority's (MA) ***prior consent***, an AI using the IRB approach may simultaneously have a portion of its credit exposures subject to the ***basic approach*** (***BSC approach***) and/or the ***standardized (credit risk) approach*** (***STC approach***), which should be reported in Form MA(BS)3(IIIa) and/or Form MA(BS)3(IIIb) according to the respective reporting requirements.

II. Classification of Exposures

7. In reporting this return, an AI should classify each of its credit exposures into one of the six IRB classes and then sub-classify each of these exposures into one of the twenty seven IRB subclasses as shown in the table below in accordance with the

[1] Exposures that are required to be deducted from an AI's CET1 capital, Additional Tier 1 capital and/or Tier 2 capital should be reported in Form MA(BS)3(II).

[2] Exposures to CCPs should be reported in Form MA(BS)3(IIIe).

[3] Securitization exposures include ***re-securitization exposure***s unless stated otherwise. Securitization exposures in the banking book should be reported in Form MA(BS)3(IIId), while securitization exposures in the trading book should be reported in Form MA(BS)3(IV).

definitions given in paragraphs 13 to 34:

IRB Class		**IRB Subclass**	
1.	Corporate exposures	(1)	Specialized lending under supervisory slotting criteria approach (project finance)
		(2)	Specialized lending under supervisory slotting criteria approach (object finance)
		(3)	Specialized lending under supervisory slotting criteria approach (commodities finance)
		(4)	Specialized lending under supervisory slotting criteria approach (income-producing real estate)
		(5)	Specialized lending (high-volatility commercial real estate)
		(6)	Small-and-medium sized corporates
		(7)	Other corporates
2.	Sovereign exposures	(8)	Sovereigns
		(9)	Sovereign foreign public sector entities
		(10)	Multilateral development banks
3.	Bank exposures	(11)	Banks
		(12)	Securities firms
		(13)	Public sector entities (excluding sovereign foreign public sector entities)
4.	Retail exposures	(14)	Residential mortgages to individuals
		(15)	Residential mortgages to property-holding shell companies
		(16)	Qualifying revolving retail exposures
		(17)	Small business retail exposures
		(18)	Other retail exposures to individuals
5.	Equity exposures	(19)	Equity exposures under market-based approach (simple risk-weight method)
		(20)	Equity exposures under market-based approach (internal models method)

IRB Class		IRB Subclass	
		(21)	Equity exposures under PD/LGD approach (publicly traded equity exposures held for long-term investment)
		(22)	Equity exposures under PD/LGD approach (privately owned equity exposures held for long-term investment)
		(23)	Equity exposures under PD/LGD approach (other publicly traded equity exposures)
		(24)	Equity exposures under PD/LGD approach (other equity exposures)
		(25)	Equity exposures (***CIS exposures***)
6.	Other exposures	(26)	Cash items
		(27)	Other items

8. Purchased receivables do not form an IRB class on their own and should be classified as ***corporate*** exposures or retail exposures, as the case requires.

III. Choice of IRB Calculation Approaches

9. Under the IRB approach, an AI may use the following IRB calculation approaches for each of the six IRB classes, provided that the relevant criteria and qualifying conditions are met:

IRB class	Corporate	Sovereign	Bank	Retail	Equity	Other
Approaches available	foundation IRB approach	foundation IRB approach	foundation IRB approach	retail IRB approach	market-based approach: simple risk-weight method	specific risk-weight approach
	advanced IRB approach				market-based approach: internal models method	
		advanced IRB approach	advanced IRB approach		PD/LGD approach	
	supervisory slotting criteria approach				***CIS calculation approach***	

IV. Structure of the IRB Return

10. The IRB return consists of the following six divisions:

Division A: Summary of Risk-weighted Amount for Credit Risk under IRB Approach – showing the risk-weighted amount by IRB class/subclass and the effect of the scaling factor; a breakdown of the risk-weighted amount for selected types of exposures and the ***CVA risk-weighted amount***[4] for ***CVA risk*** is also shown;

Division B: Risk-weighted Amount by IRB Class/Subclass – providing information on the ***credit risk components*** and risk-weighted amount of individual IRB subclasses or, where applicable, individual portfolio types;

Division C: LGD for Corporate, Sovereign and Bank Exposures – providing supplementary information on ***LGD*** of individual IRB subclasses or, where applicable, individual portfolio types for ***corporate***, ***sovereign*** and ***bank*** exposures under the ***foundation IRB approach*** or the ***advanced IRB approach***;

Division D: Off-Balance Sheet Exposures (Other than Default Risk Exposure in respect of Derivative Contracts and SFTs) under IRB Approach – providing supplementary information to Division B by giving a breakdown of off-balance sheet exposures (other than derivative contracts and SFTs) for corporate, sovereign, bank and retail exposures;

Division E: Default Risk Exposures in respect of Derivative Contracts and SFTs – providing supplementary information to Division B by giving a breakdown of derivative contracts and SFTs for corporate, sovereign, bank and retail exposures; and

Division F: EL-EP Calculation under IRB Approach – providing a breakdown of the respective ***EL amount*** and ***eligible provisions*** for corporate, sovereign, bank and retail exposures and calculating the difference between the two, if any, for the computation of the capital base.

11. There are multiple forms in Divisions B, C and E of this return for the reporting of different IRB subclasses of exposures or exposures subject to different calculation methods. A list showing the reporting forms under various divisions is given at **Annex IIIc-B**. For Divisions A, D and F, an AI is required to report the positions of all relevant IRB classes/subclasses in one single form. For Divisions B and C, the position of each IRB subclass (or, where applicable, each portfolio type) should be reported separately in the form applicable to that IRB subclass (or that portfolio type). For Division E, the positions should be reported separately according to the methods the AI adopts for the calculation of ***default risk exposure***s in respect of derivative contracts and SFTs.

[4] The term "CVA" in "CVA risk-weighted amount" refers to "***credit valuation adjustment***" – see definition in section 2(1) of the Rules. The CVA risk-weighted amount is the aggregate of such amounts reported in Form MA(BS)3(IIIf).

12. Where an AI uses more than one internal ***rating system*** for an IRB class/subclass[5], the AI should split the exposures into portfolios according to the internal rating systems used and report each portfolio in one form under Division B (and, where applicable, Division C). In addition, the AI should provide a brief description of the nature of the portfolio under the item "portfolio type" of each separate form. An AI should consult with the HKMA on the appropriate reporting treatment if it has difficulties to report its exposures by portfolio in the above manner.

V. Definitions and Clarification

(A) Definition of IRB Classes and Subclasses

Corporate Exposures

13. An AI should classify each of its exposures to corporates, including purchased corporate receivables, into one of the following IRB subclasses:

(i) ***specialized lending*** (SL) under ***supervisory slotting criteria approach*** (project finance) (see paragraphs 14 to 16);

(ii) SL under supervisory slotting criteria approach (***object finance***) (see paragraphs 14 to 16);

(iii) SL under supervisory slotting criteria approach (***commodities finance***) (see paragraphs 14 to 16);

(iv) SL under supervisory slotting criteria approach (***income-producing real estate***) (see paragraphs 14 to 16);

(v) Specialized lending (high-volatility commercial real estate) (see paragraphs 14 to 16);

(vi) small-and-medium sized corporates (SME corporates) (see paragraph 17); and

(vii) other corporates (see paragraph 18).

(a) SL

14. SL is a corporate exposure that possesses, unless specified otherwise, all of the following characteristics, either in legal form or economic substance:

[5] For example, an AI may have more than one internal rating system for its qualifying revolving retail exposures, such as having separate scorecards for credit card lending and personal revolving loans.

(i) the exposure is usually to a corporate (often a special purpose vehicle (SPV)) which has been created specifically to own and/or operate a specific asset (in other words, it has little or no other material assets or activities);

(ii) the terms of the exposure give the AI (i.e. the lender) a substantial degree of control over the specific asset and the income which the specific asset generates; and

(iii) the primary source of repayment of the exposure is the income generated by the specific asset (i.e. rather than other sources of income generated by the corporate).

15. There are five types of SL:-

(i) Project finance (PF): PF refers to a method of funding in which an AI looks primarily to the revenue generated by a single project, both as the source of repayment of, and as collateral for, the exposure. PF is usually for large, complex and expensive installations that may include, for example, power plants, chemical processing plants, mines, transportation infrastructure, and telecommunications infrastructure. It may take the form of financing of the construction of a new capital installation, or refinancing of an existing installation, with or without improvements. The borrowing entity is usually an SPV established for the purpose of the project that is not permitted to perform any function other than developing, owning and operating the installation. The consequence is that repayment depends primarily on the project's cash flows (such as electricity sold by a power plant) and on the collateral value of the project's assets. In contrast, if repayment of the exposure depends primarily on a well established, diversified, credit-worthy and contractually obligated entity, the exposure should be treated as a collateralized exposure to that entity;

(ii) Object finance (OF): OF refers to a method of funding the acquisition of physical assets (e.g. taxis, public light buses, ships, aircraft and satellites) where the repayment of the exposure is dependent on the cash flows generated by the assets that have been financed and pledged or assigned to an AI. A primary source of these cash flows may be rental or lease contracts with one or several third parties. In contrast, if the exposure is to a borrowing entity whose financial condition and debt-servicing capacity enables it to repay the debt without undue reliance on the specifically pledged assets, the exposure should be treated as a collateralized corporate exposure;

(iii) Commodities finance (CF): CF refers to a structured short-term lending to finance reserves, inventories, or receivables of exchange-traded commodities (e.g. metals, energy or agricultural products), where the exposure will be repaid from the proceeds of the sale of the commodity and the borrowing entity has no other sources of income to repay the exposure. This is the case when the borrowing entity has no other activities and no other material assets on its balance sheet. The structured nature of the financing is designed to compensate for the weak credit quality of the borrowing entity. The rating of the exposure reflects its self-liquidating nature and the AI's skill in structuring the transaction rather than the credit quality of the borrowing entity. Such lending can be

distinguished from exposures financing the reserves, inventories, or receivables of other more diversified borrowing entities where the AI is able to rate the credit quality of these latter entities based on their broader ongoing operations. In such cases, the value of the commodity serves as a risk mitigant rather than as the primary source of repayment;

(iv) Income-producing real estate (IPRE): IPRE refers to a method of funding to finance real estate (such as office buildings, retail shops, residential buildings, industrial or warehouse premises, and hotels) where the prospects for repayment and recovery on the exposure depend primarily on the cash flows generated by the asset. The primary source of these cash flows would generally be lease or rental payments or the sale of the asset. The borrowing entity may be, but is not required to be, an SPV, an operating company focused on real estate construction or holdings, or an operating company with sources of revenue other than real estate. The distinguishing characteristic of IPRE versus other corporate exposures that are collateralized by real estate is the strong positive correlation between the prospects for repayment of the exposure and the prospects for recovery in the event of default, with both depending primarily on the cash flows generated by a property; and

(v) High-volatility commercial real estate (HVCRE): HVCRE is the financing of commercial real estate that exhibits a higher loss rate volatility (i.e. higher asset correlation) compared to other types of SL. ***HVCRE exposure***s include:

- Commercial real estate exposures secured by any commercial real estate of a type that is categorized and announced by the MA or a relevant banking supervisory authority outside Hong Kong as sharing a higher volatility in portfolio default rate;

- Commercial real estate exposures financing any of the land acquisition, development and construction phases (ADC phases) of commercial real estate of a type referred to above; and

- Exposures financing the ADC phases of any other commercial real estate where the source of repayment at origination of the exposure is either the future uncertain sale of the commercial real estate or cash flows whose source of repayment is substantially uncertain (e.g. the commercial real estate has not yet been leased to the occupancy rate prevailing in that geographic market for that type of commercial real estate), and the borrowing entity in respect of the exposure does not have substantial equity at risk in the commercial real estate. ***Specified ADC exposure***s as defined under section 158(6) of the Rules, however, are ineligible for the preferential treatment set out in section 158(3) of the Rules.

Pursuant to section 143(4A) and (5)(ba) of the Rules, and unlike other types of SL, an AI's corporate exposures that meet the descriptions of HVCRE exposures above must be categorized into the IRB subclass of specialized lending (high-volatility commercial real estate) and are precluded from falling within any other IRB subclasses of corporate exposures (such as the IRB subclass of specialized lending (income-producing real estate)).

16. An AI that does not meet the requirements for ***PD*** estimation under the foundation IRB approach, or those for the estimation of PD, LGD and ***EAD*** and the calculation of ***M*** under the advanced IRB approach, for its SL should use the supervisory slotting criteria approach to derive the risk-weighted amount of such SL, by:

(i) assigning the SL to internal grades based on its own rating criteria and map its internal grades to the five supervisory rating grades of "strong", "good", "satisfactory", "weak" and "default" (see paragraph 77) by reference to the criteria specified in Annex 6 to the document entitled "International Convergence of Capital Measurement and Capital Standards – A Revised Framework (Comprehensive Version)" published by the Basel Committee on Banking Supervision (BCBS) in June 2006 or the ***credit quality grades*** specified in Schedule 8 of the Rules; and

(ii) complying with applicable requirements set out in section 158(2) of the Rules.

(b) SME corporates

17. In respect of an exposure to a corporate (other than HVCRE exposures) which has a reported total annual revenue (or a consolidated reported total annual revenue for the group of which the corporate is a part[6]) of less than HK$500 million, an AI may classify the exposure under the IRB subclass of SME corporates. In the case where total annual revenue is not a meaningful indicator of the scale of business of a corporate, the MA may, on an exceptional basis, allow an AI to substitute the total assets for total annual revenue in applying the above threshold for that corporate. To ensure that the information used is timely and accurate, the AI should obtain the total annual revenue figures from the corporate's latest audited financial statements[7] and have the figures updated at least annually.

(c) Other corporates

18. An AI should classify all of its exposures to corporates which do not fall within any of the following IRB subclasses:

(i) SL under supervisory slotting criteria approach (PF);

(ii) SL under supervisory slotting criteria approach (OF);

(iii) SL under supervisory slotting criteria approach (CF);

[6] Where the corporate concerned is consolidated with other corporates by the AI for risk management purposes, the figure of the consolidated reported total annual revenue can be derived from the aggregate of the reported total annual revenue in the latest annual financial statements of the corporate concerned and the other corporates.

[7] This does not apply to those customers that are not subject to statutory audit (such as a sole proprietorship). In such cases, an AI should obtain their latest available management accounts.

(iv) SL under supervisory slotting criteria approach (IPRE);

(v) SL (high-volatility commercial real estate);

(vi) SME corporates;

(vii) residential mortgages (RM) to ***property-holding shell companies*** (see paragraph 25); and

(viii) small business retail exposures (see paragraph 27),

as exposures under the IRB subclass of other corporates.

Sovereign Exposures

19. Sovereign exposures[8] include exposures which fall within one of the following IRB subclasses:

(i) sovereigns;

(ii) ***sovereign foreign public sector entities*** (SFPSEs); and

(iii) multilateral development banks (MDBs).

Bank Exposures

20. Bank exposures include exposures which fall within one of the following IRB subclasses:

(i) banks;

(ii) ***securities firms***; and

(iii) ***public sector entities*** (PSEs) that are not SFPSEs.

Retail Exposures

21. Exposures to individuals which, regardless of exposure size, are managed by an AI on a pooled or portfolio basis[9] should be classified as retail exposures. Retail exposures to individuals usually include ***residential mortgage loans*** (RMLs), ***revolving*** credits (e.g. credit cards and overdrafts) and other personal loans (e.g. instalment loans, auto

[8] Holdings of notes and coins should be reported as cash items under the IRB class of other exposures (see paragraph 34).

[9] The MA does not intend to set the minimum number of retail exposures in a portfolio. An AI should establish its own policies to ensure the granularity and homogeneity of its retail exposures.

loans, tax loans, personal finance and other retail credits with similar characteristics). For those exposures which are not managed by an AI on a pooled or portfolio basis[10], an AI should treat them as corporate exposures.

22. Exposures to corporates may also be classified as retail exposures, provided that the criteria set out in paragraph 27 are met.

23. An AI should classify each of its retail exposures, including purchased retail receivables, into one of the following IRB subclasses:

(i) RM to individuals (see paragraph 24);

(ii) RM to property-holding shell companies (see paragraph 25);

(iii) qualifying revolving retail exposures (QRRE) (see paragraph 26);

(iv) small business retail exposures (see paragraph 27); and

(v) other retail exposures to individuals (see paragraph 28).

(a) RM to individuals

24. RM to individuals refers to RMLs (including first and subsequent liens, term loans and revolving home equity lines of credit) that are extended to individuals, regardless of exposure size, and that the property secured for the loan is used, or intended for use, as the residence of the borrower or as the residence of a tenant, or a licensee, of the borrower.

(b) RM to property-holding shell companies

25. RM to property-holding shell companies refers to RMLs granted to property-holding shell companies on the condition that the credit risk of such loans is akin to those granted to individuals. This is considered to be the case where:

(i) the property securing the RML is used, or intended for use, as the residence of one or more than one director or shareholder of the property-holding shell company or as the residence of a tenant, or a licensee, of the property-holding shell company;

(ii) the RML granted to the property-holding shell company is fully and effectively covered by a personal ***guarantee*** entered into by one or more than one director or shareholder of the company ("the guarantors");

[10] This does not preclude retail exposures from being treated individually at some stages of the risk management process. The fact that an exposure is rated individually does not by itself preclude it from being eligible as a retail exposure.

(iii) the AI is satisfied that the above guarantors are able to discharge their financial obligations under the guarantees, having due regard to their overall indebtedness; and

(iv) the RML granted to the property-holding shell company has been assessed by reference to substantially similar credit underwriting standards (e.g. the loan purpose, loan-to-value ratio and debt-service ratio) as would normally be applied by the AI to an individual.

(c) QRRE

26. An AI should classify under the IRB subclass of QRRE a retail exposure that meets the following criteria:

(i) the exposure is ***revolving***, unsecured, and unconditionally cancellable (both contractually and in practice) by the AI;

(ii) the exposure is to one or more than one individual and not explicitly for business purposes;

(iii) the exposure is not more than HK$1 million;

(iv) the exposure belongs to a ***pool*** of exposures which have exhibited, in comparison with other IRB subclasses of retail exposures, low loss rate volatility relative to the AI's average level of loss rates for retail exposures, especially within the pools to which low estimates of PD are attributed[11];

(v) data on loss rates for the QRRE portfolio(s) are retained by the AI in order to allow analysis of the volatility of loss rates; and

(vi) treatment of the exposure as QRRE is consistent with the underlying risk characteristics of the exposure.

(d) Small business retail exposures

27. An AI may classify its exposures to a corporate under the IRB subclass of small business retail exposures, provided that:

(i) the total exposure of the AI or, where applicable, of its ***consolidation group*** to the corporate (or, where applicable, to the consolidated group of which the corporate is a part) is less than HK$10 million[12];

[11] This is because the correlation value (R) of the QRRE risk-weight formula is markedly below that of the risk-weight formula for other IRB subclasses of retail exposures, especially at low PD values.

[12] Small business credits extended through, or guaranteed by, an individual are subject to the same exposure threshold.

(ii) the exposures are originated by the AI in a manner similar to retail exposures to individuals; and

(iii) the exposures are managed by the AI on a pooled or portfolio basis in the same manner as retail exposures to individuals. In other words, they should not be managed individually in a way similar to corporate exposures, but rather as a portfolio segment or a pool of exposures with similar risk characteristics for the purposes of risk assessment and quantification.

(e) Other retail exposures to individuals

28. Other retail exposures to individuals include all retail exposures to individuals (see paragraph 21) which do not fall within the IRB subclass of:

(i) RM to individuals (see paragraph 24); or

(ii) QRRE (see paragraph 26).

Equity Exposures

29. An AI should consider the economic substance of an instrument in determining whether the instrument should be classified as an equity exposure. Equity exposures include both direct and indirect ownership interests (whether voting or non-voting) in a corporate[13] where those interests are not consolidated or deducted for the purposes of calculating an AI's capital base. These instruments include:

(i) holdings of any share issued by a corporate;

(ii) holdings of any ***equity-related derivative contract***;

(iii) holdings of any CIS exposures;

(iv) holdings of any instrument which would be included in an AI's CET1 capital or Additional Tier 1 capital if the instrument were issued by the AI;

(v) holdings of any instrument:

- which is irredeemable in the sense that the return of the invested funds can be achieved only by the sale of the instrument or the sale of the rights to the instrument or by the liquidation of the issuer;
- which does not embody an obligation on the part of the issuer (subject to item (vi)); and
- which conveys a residual claim on the assets or income of the issuer;

[13] For the purposes of categorizing exposures into the IRB class of equity exposures, corporate means a company, or a partnership or any other unincorporated body, that is not a public sector entity.

(vi) holdings of any instrument which embodies an obligation on the part of the issuer and in respect of which:

- the issuer may indefinitely defer the settlement of the obligation;
- the obligation requires (or permits at the issuer's discretion) settlement by the issuance of a fixed number of the issuer's equity shares;
- the obligation requires (or permits at the issuer's discretion) settlement by the issuance of a variable number of the issuer's equity shares and, other things being equal, any change in the value of the obligation is attributable to, comparable to, and in the same direction as, the change in the value of a fixed number of the issuer's equity shares[14]; or
- the AI, as the holder of the instrument, has the option to require that the obligation be settled in equity shares, unless the AI demonstrates to the satisfaction of the MA that: (a) in the case of a traded instrument, the instrument trades more like debt of the issuer than equity; or (b) in the case of a non-traded instrument, the instrument should be treated as a debt holding;

(vii) holdings of any ***non-capital LAC liability*** of a financial sector entity;

(viii) holdings of any debt obligation, share, derivative contract, investment scheme (other than a collective investment scheme) or instrument, which is structured with the intent of conveying the economic substance of equity interests[15]; and

(ix) any of the AI's liabilities on which the return is linked to that of equity interests.

30. An AI should not classify as equity exposures any equity holding (other than equity holding in a collective investment scheme) which is structured with the intent of conveying the economic substance of debt holdings or securitization exposures. The MA may, on a case-by-case basis, require an AI to re-classify a debt holding as an equity exposure if the MA considers that the nature and economic substance of the debt holding are more akin to an equity exposure than a debt holding.

31. An AI adopting the IRB approach is required to classify each of its equity exposures (other than CIS exposures) booked in the banking book under one of the following IRB subclasses based on the method in use (i.e. the ***market-based approach*** or the ***PD/LGD approach***) and, where applicable, the portfolio types:

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[14] For certain obligations that require or permit settlement by the issuance of a variable number of the issuer's equity shares, the change in the monetary value of the obligation is equal to the change in the fair value of a fixed number of equity shares multiplied by a specified factor. Those obligations meet the conditions of this item if both the factor and the reference number of shares are fixed. For example, an issuer may be required to settle an obligation by issuing shares with a value equal to three times the appreciation in the fair value of 1,000 equity shares. That obligation is considered to be the same as an obligation that requires settlement by the issuance of shares equal to the appreciation in the fair value of 3,000 equity shares.

[15] Equity interests that are recorded by an AI as a loan, but which arise from a debt/equity swap made as part of the orderly realization or restructuring of a debt should be classified as equity exposures. However, these exposures may not be allocated a lower risk-weight than would apply if such holdings had remained in the AI's debt portfolio.

(i) equity exposures under market-based approach (***simple risk-weight method***);

(ii) equity exposures under market-based approach (***internal models method***);

(iii) equity exposures under PD/LGD approach (publicly traded equity exposures held for long-term investment);

(iv) equity exposures under PD/LGD approach (privately owned equity exposures held for long-term investment);

(v) equity exposures under PD/LGD approach (other publicly traded equity exposures); and

(vi) equity exposures under PD/LGD approach (other equity exposures).

32. An AI must use the CIS calculation approach to calculate the risk-weighted amount of a CIS exposure not constituting a ***deductible holding*** in accordance with Part 6B of the Rules.

33. Equity exposures booked in the trading book are not subject to the IRB approach. Instead, these exposures should be subject to the ***market risk*** capital treatment and reported in Form MA(BS)3(IV).

Other Exposures

34. An AI should classify under the IRB class of other exposures any of its exposures which do not fall within the IRB class of corporate, sovereign, bank, retail or equity exposures. These exposures include:

(i) ***cash items***, the types of exposures covered are set out in the table under paragraph 139; and

(ii) ***other items***, which are other exposures that do not fall within the IRB subclass of cash items, e.g. premises, plant and equipment and other fixed assets for own use (see paragraph 140).

(B) Clarification

35. Figures of percentage or year should be rounded up to two decimal points.

36. An AI should report in the columns of "Exposures before ***recognized guarantees*** / credit derivative contracts" the ***EAD*** of its on-balance sheet exposures and off-balance sheet exposures before adjusting for the credit risk mitigating effects of any recognized guarantee and ***recognized credit derivative contract***. For instance:

(i) in respect of on-balance sheet exposures, the AI should report the EAD of such exposures both before and after adjusting for the credit risk mitigating effects of any ***recognized netting***;

(ii) in respect of off-balance sheet exposures (other than derivative contracts and SFTs), the AI should report the ***credit equivalent amount*** of such exposures; and

(iii) in respect of off-balance sheet exposures which are derivative contracts and SFTs, the AI should report the default risk exposures of such transactions after adjusting for the credit risk mitigating effects of any recognized netting.

37. An AI should report in the columns of "Exposures after recognized guarantees / credit derivative contracts" the EAD of its on-balance sheet exposures and off-balance sheet exposures after adjusting for the credit risk mitigating effects of any recognized netting, recognized guarantee and recognized credit derivative contract.

38. ***Principal amount***, in respect of an off-balance sheet exposure, should be reported without deduction of ***specific provisions*** and partial write-offs.

39. Double counting of exposures arising from the same contract or transaction should be avoided. For example, only the undrawn portion of a corporate loan commitment should be reported as an off-balance sheet exposure in item 9 or 10 of Form IRB_OBSND and columns (7) and (10) of Form IRB_CSB while the actual amount drawn should be reported as an on-balance sheet exposure in columns (6) and (9) of Form IRB_CSB. Similarly, ***trade-related contingencies***, e.g. trust receipts and shipping guarantees for which the exposures have already been reported as letters of credit issued or loans against import bills etc., should not be reported under item 3 of Form IRB_OBSND and columns (7) and (10) of Form IRB_CSB.

40. In certain cases, credit exposures arising from derivative contracts may have already been fully or partially reflected on the balance sheet. For example, an AI may have already recorded the ***current exposures*** to counterparties (i.e. ***mark-to-market*** values) under foreign exchange and interest rate related contracts on the balance sheet, typically as either sundry debtors or sundry creditors. To avoid double counting, such exposures should be excluded from on-balance sheet exposures and reported under the derivative contracts for the purposes of this return.

41. The accrued interest of a credit exposure should form part of the EAD of the credit exposure. An AI should therefore classify and risk-weight the accrued interest receivables in the same way as the principal amount of the respective credit exposures.

Section B: Calculation of Risk-weighted Amount for Credit Risk under IRB Approach

I. Risk-weighted Amount under IRB Approach

42. The IRB approach to credit risk is based on measures of unexpected loss (UL) and ***expected loss*** (***EL***). The ***risk-weight functions*** in this section produce capital requirements for the UL portion. EL is treated separately as outlined in section C.

43. An AI should calculate the risk-weighted amount for the UL of its credit exposures (excluding exposures that are subject to deduction from the AI's CET1 capital, Additional Tier 1 capital and Tier 2 capital, securitization exposures and exposures to CCPs) under the IRB approach as follows:

(i) the AI should calculate the risk-weighted amount of each exposure (except equity exposures to which item (ii) and (iii) apply and counterparty credit risk exposures to which item (iv) applies) by multiplying the EAD of each such exposure by the relevant risk-weight;

(ii) in respect of an equity exposure which is subject to the internal models method and for which the relevant minimum risk-weight (see paragraph 124(ii)) does not apply, the AI should calculate the risk-weighted amount by multiplying the potential loss of the exposure calculated under the internal models method by 12.5;

(iii) in respect of an equity exposure which is a CIS exposure not constituting a deductible holding, the AI must calculate its risk-weighted amount in accordance with Part 6B of the Rules;

(iv) in respect of derivative contracts or SFTs, the AI must calculate the risk-weighted amount of the counterparty credit risk exposure -

(a) if the AI has an ***IMM(CCR) approval***[16] and an approval to use the ***IMM approach***[17] to calculate the ***market risk capital charge*** for specific risk for interest rate exposures, by aggregating -

- the ***IMM(CCR) risk-weighted amount*** of the transactions or contracts concerned that are covered by the IMM(CCR) approval;

- the ***SA-CCR risk-weighted amount*** [18] or ***SFT risk-weighted amount***[19] of the transactions or contracts concerned that are (i) not

[16] The term "IMM(CCR)" in "IMM(CCR) approval" refers to the ***internal models (counterparty credit risk) approach*** (***IMM(CCR) approach***) - see definitions in section 2(1) of the Rules.

[17] The term "IMM approach" refers to the ***internal models approach*** for the calculation of market risk - see definition in section 2(1) of the Rules.

[18] The term "SA-CCR" in "SA-CCR risk-weighted amount" refers to the ***standardized (counterparty credit risk) approach*** - see definition in section 2(1) of the Rules.

[19] See the definition of "SFT risk-weighted amount" in section 139(1) of the Rules.

covered by the IMM(CCR) approval; or (ii) covered by the IMM(CCR) approval but fall within section 10B(5) or (7) of the Rules; and

- the CVA risk-weighted amount determined using the ***advanced CVA method*** (and reported in Division A of Form MA(BS)3(IIIf)), the ***standardized CVA method*** (and reported in Division B of Form MA(BS)3(IIIf)), or a combination of those 2 methods that is permitted under the Rules, as the case requires;

(b) if the AI has an IMM(CCR) approval but does not have an approval to use the IMM approach to calculate the market risk capital charge for specific risk for interest rate exposures, by aggregating -

- the IMM(CCR) risk-weighted amount of the transactions or contracts concerned that are covered by the IMM(CCR) approval;

- the SA-CCR risk-weighted amount or SFT risk-weighted amount of the transactions or contracts concerned that are (i) not covered by the IMM(CCR) approval; or (ii) covered by the IMM(CCR) approval but fall within section 10B(5) or (7) of the Rules; and

- the CVA risk-weighted amount determined using the standardized CVA method (and reported in Division B of Form MA(BS)3(IIIf)); and

(c) if the AI does not have an IMM(CCR) approval for any of its transactions or contracts, by aggregating -

- the SA-CCR risk-weighted amount;

- the SFT risk-weighted amount; and

- the CVA risk-weighted amount determined using the standardized CVA method (and reported in Division B of Form MA(BS)3(IIIf)); and

(v) the AI should aggregate the risk-weighted amount figures derived from items (i), (ii), (iii) and (iv) (except the CVA risk-weighted amounts reported in Form MA(BS)3(IIIf)) and then apply a scaling factor (1.06) to the aggregate figure to arrive at the total risk-weighted amount for credit risk under the IRB approach.

44. For the purposes of paragraph 43(iv), an AI may, in the case of a default risk exposure in respect of ***long settlement transaction***s (LSTs), determine the exposure's relevant risk-weight using the STC approach on a permanent basis.

45. An AI must regard the total amount of the ***CVA capital charge*** for its counterparties determined in accordance with Division 3 of Part 6A of the Rules as the basis for determining the CVA risk-weighted amount of the AI as required under paragraph

43(iv), regardless of whether any of those counterparties falls within Part 6 of the Rules. That means the CVA risk-weighted amounts reported in Form MA(BS)3(IIIf) should be aggregated and reported in item 9 of Division A of Form MA(BS)3(IIIc).

46. An AI may reduce the risk-weighted amount of an exposure by taking into account the effect of any ***recognized credit risk mitigation*** through adjusting the PD, LGD or EAD, as the case may be, in accordance with Part XIII of this section.

II. General Requirements for All IRB Classes

(A) General Requirements

47. There are three key elements for calculation of risk-weighted amount for the UL portion under the IRB approach, including:

(i) credit risk components – these are estimates of PD, LGD, EAD, EL and M made by an AI, or *supervisory estimates* specified in the Rules;

(ii) risk-weight functions – these are the formulae by which credit risk components are transformed into risk-weighted amount and therefore capital requirements; and

(iii) minimum requirements - the minimum standards which an AI should meet for the use of the IRB approach[20].

48. An AI should use the risk-weight functions provided in this section for the purpose of calculating the risk-weighted amount, unless otherwise specified. In applying such risk-weight functions, PD and LGD are measured as decimals, EAD is measured in HK$ and M is measured in years.

49. For the purposes of calculating the EAD of an exposure (whether held on- or off-balance sheet) that is measured at fair value, an AI should comply with the prudent valuation and valuation adjustment requirements in section 4A of the Rules.

(B) Corporate, Sovereign and Bank Exposures

50. Under the foundation IRB approach, an AI should provide its own estimates of PD associated with each of its ***obligor grades***, but should use supervisory estimates for other credit risk components (i.e. LGD, EAD and M[21]).

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[20] Please refer to Part 6 and Schedule 2 of the Rules and the relevant supervisory policy/guidance relating to the IRB approach.

[21] The use of explicit maturity adjustments is not required under the foundation IRB approach. Subject to the MA's prior consent, an AI having suitable systems for the calculation of M may be allowed to use explicit maturity adjustments under the foundation IRB approach.

51. Under the advanced IRB approach, an AI should provide its own estimates of PD, LGD and EAD and calculate M.

52. In respect of SL under supervisory slotting criteria approach (see paragraph 16), an AI should apply the supervisory estimate of a risk-weight that is applicable to a supervisory rating grade (see paragraph 77) in calculating the risk-weighted amount of such SL.

(C) Retail Exposures

53. Under the ***retail IRB approach***, an AI should provide its own estimates of PD, LGD and EAD associated with each pool of retail exposures. There is no distinction between a foundation approach and an advanced approach for retail exposures.

(D) Equity Exposures

54. There are two approaches to calculate the risk-weighted amount of equity exposures (other than CIS exposures) held in the banking book: (i) the market-based approach and (ii) the PD/LGD approach[22]. Under the market-based approach, an AI may use the simple risk-weight method, the internal models method or a combination of both. However, for certain types of equity exposures that meet specified descriptions, a supervisory risk-weight applies to the relevant exposures irrespective of the calculation approaches the exposures are subject to (see paragraphs 121 and 122). For equity exposures which are CIS exposures, the CIS calculation approach must be used to calculate their risk-weighted amount.

(E) Other Exposures

55. Under the ***specific risk-weight approach***, an AI should apply a specific risk-weight applicable to an exposure which falls within the IRB subclass of cash items (see paragraph 139) or the IRB subclass of other items (see paragraph 140) in calculating the risk-weighted amount of the exposure.

III. Specific Requirements for Certain Exposure Portfolios

(A) Purchased Receivables

56. Purchased receivables straddles corporate and retail IRB classes. For purchased corporate receivables, both the foundation IRB approach and the advanced IRB approach are available subject to the relevant minimum requirements being met. Like other retail exposures, there is no distinction between a foundation approach and an advanced approach for purchased retail receivables. For purchased receivables

[22] The PD/LGD approach to equity exposures remains available for an AI adopting the advanced IRB approach for its corporate, sovereign and bank exposures.

(whether corporate or retail), an AI is required to calculate the risk-weighted amount for default risk and, if material, ***dilution risk*** of such purchased receivables (see Part VIII of this section).

(B) Leasing Transactions

57. There is a distinct treatment for calculating the risk-weighted amount of exposures arising from leases with ***residual value risk*** (see Part IX of this section). Leases without any residual value risk will be accorded the same treatment as exposures collateralized by the underlying leased assets.

(C) Securities Financing Transactions (SFTs)

58. The calculation of the risk-weighted amount for SFTs depends on the economic substance of the transaction and whether the transaction is booked in the banking book or the trading book (see Part X of this section).

(D) Credit-linked Notes

59. The calculation of the risk-weighted amount for a ***credit-linked note*** depends on the risk-weight attributable to the ***reference obligation*** or basket of reference obligations of the note, the note issuer, and the AI's maximum liability under the note (see Part XI of this section).

(E) IPO financing

60. An AI may opt to apply section 64A to its relevant corporate, bank and retail exposures arising from IPO financing (pursuant to section 202B). Under this option, the exposures arising from IPO financing eligible for 0% risk-weight should be reported as a separate portfolio type of the respective IRB subclass, by distinguishing such exposures from others as "IPO financing under BCR202B" in Divisions B and C. To attain a 0% risk-weight, an AI should input a LGD of 0% and provide its own estimates or supervisory estimates for other credit risk components as appropriate. Note that this treatment is not applicable to any outstanding loan amounts after payments for allotted securities are made to the relevant receiving bank.

IV. Corporate, Sovereign and Bank Exposures

(A) Risk-weight Function for Derivation of Risk-weighted Amount

61. The calculation of the risk-weighted amount of a corporate, sovereign or bank exposure is dependent on the estimates of PD, LGD, EAD and, in some cases, M, of a given exposure.

(a) Non-defaulted exposures

62. Subject to paragraph 79, for corporate, sovereign and bank exposures that are not in default (but excluding those treated as ***hedged exposures*** under the ***double default framework***), the risk-weighted amount is calculated as follows [23, 24]:

Correlation (R)

= 0.12 × (1 - EXP (-50 × PD)) / (1 - EXP (-50)) + 0.24 × [1 - (1 - EXP (-50 × PD)) / (1 - EXP (-50))]

Maturity adjustment (b)

= (0.11852 - 0.05478 × ln (PD))^2

Capital charge factor[25] (K)

= [LGD × N [(1 - R)^-0.5 × G (PD) + (R / (1 - R))^0.5 × G (0.999)] - PD x LGD] x (1 - 1.5 x b)^ -1 × (1 + (M - 2.5) × b)

Risk-weight (RW) = K x 12.5

Risk-weighted amount = RW x EAD

(Illustrative risk-weights are shown in **Annex IIIc-C**.)

(b) Defaulted exposures

63. An AI should use the same risk-weight function set out in paragraph 62 to calculate the risk-weighted amount of its corporate, sovereign and bank exposures which are in default (i.e. a default of the obligor in respect of the exposure has occurred by virtue of section 149(1) or (5A) of the Rules), except that the capital charge factor (K) for a defaulted corporate, sovereign or bank exposure should be equal to the greater of:

(i) zero; or

(ii) the figure resulting from the subtraction of the AI's best estimate of the EL[26] from the LGD of the defaulted exposure.

(c) Hedged exposures under double default framework

[23] EXP denotes exponential and ln denotes the natural logarithm.

[24] N(x) denotes the cumulative distribution function for a standard normal random variable (i.e. the probability that a normal random variable with mean zero and variance of one is less than or equal to x). G(z) denotes the inverse cumulative distribution function for a standard normal random variable (i.e. the value of x such that N(x) = z). The normal cumulative distribution function and the inverse of the normal cumulative distribution function are, for example, available in Excel as the functions NORMSDIST and NORMSINV.

[25] If this calculation results in a negative capital charge for any individual sovereign exposure, an AI should apply a zero capital charge for that exposure.

[26] With the prior consent of the MA, an AI which uses the foundation IRB approach may use the supervisory estimate for the LGD as the EL for its corporate, sovereign and bank exposures which are in default.

64. For any hedged exposure under the double default framework (see paragraphs 216 and 217), the risk-weighted amount is calculated as below:

Correlation (ρ_{os})

$= 0.12 \times (1 - EXP(-50 \times PD_o)) / (1 - EXP(-50)) + 0.24 \times [1 - (1 - EXP(-50 \times PD_o)) / (1 - EXP(-50))]$

Maturity adjustment (b_{os})

$= (0.11852 - 0.05478 \times \ln(PD_{os}))^2$

Capital charge factor (K_{DD})

$$= \left\{ LGD_g \times \left[N\left(\frac{G(PD_o) + \sqrt{\rho_{os}} \times G(0.999)}{\sqrt{1-\rho_{os}}} \right) - PD_o \right] \times \frac{1 + (M_{os} - 2.5) \times b_{os}}{1 - 1.5 \times b_{os}} \right\} \times (0.15 + 160 \times PD_g)$$

Risk-weight (RW_{DD}) = K_{DD} x 12.5

Risk-weighted amount = RW_{DD} x EAD_g

where:

PD_o	=	PD of the underlying ***obligor*** without taking into account the effect of ***credit protection*** (see paragraph 82)
PD_g	=	PD of the ***credit protection provider*** of the hedged exposure (see paragraph 82)
PD_{os}	=	The lower of PD_o and PD_g
M_{os}	=	M of the credit protection (see paragraph 109)
LGD_g	=	LGD of a comparable direct exposure to the credit protection provider (see paragraphs 100 and 101)
EAD_g	=	EAD of the hedged exposure

65. Defaulted exposures cannot be subject to the double default framework. In case the underlying obligor of a hedged exposure defaults, such exposure should be treated as a direct exposure to the credit protection provider and then risk-weighted accordingly. Conversely, if the credit protection provider of a hedged exposure defaults, such exposure should remain with the underlying obligor and should be risk-weighted as an ***unhedged exposure*** to the underlying obligor. In case both the underlying obligor and the credit protection provider of a hedged exposure default, such exposure should be treated as a defaulted exposure to either the underlying obligor or the credit protection provider, depending on which party defaulted last.

(d) Derivative contracts - Full maturity adjustment

66. Where an AI that uses the advanced CVA method to calculate its CVA capital charge demonstrates to the satisfaction of the MA that its ***VaR*** model used in the advanced CVA method adequately covers the effects of rating migrations, the institution may—

(i) calculate the risk-weight applicable to a default risk exposure in respect of derivative contracts under paragraph 62 with the *full maturity adjustment* set equal to 1; and

(ii) calculate the risk-weight applicable to a default risk exposure in respect of derivative contracts under paragraph 64 with the full maturity adjustment set equal to 1 but the credit protection provider must be one of the counterparties covered by the CVA capital charge calculation.

67. The term "full maturity adjustment" in paragraph 66(i) and (ii) means -

(i) that amount calculated by the component (1 – 1.5 × b)^ – 1 × (1 + (M – 2.5) × b) in Formula 16 of the Rules (see paragraph 62); or

(ii) that amount calculated by the component $\frac{1+(M_{os}-2.5)\times b_{os}}{1-1.5\times b_{os}}$ in Formula 17 of the Rules (see paragraph 64),

as the case requires.

(e) SME corporates - Firm-size adjustment

68. An AI using the IRB approach is permitted to separately distinguish its corporate exposures as SME corporates as defined in paragraph 17. For these SME corporate exposures, a firm-size adjustment (i.e. 0.04 x (1 - (S-50) / 450)) must be applied to the relevant risk-weight function as set out in paragraph 62 or 64, as the case requires, for the calculation of the correlation value:

(i) Exposures to SME corporates that are not subject to the double default framework

Correlation (R)

= 0.12 × (1 - EXP (-50 × PD)) / (1 - EXP (-50)) + 0.24 × [1 - (1 - EXP (-50 × PD)) / (1 - EXP (-50))] - 0.04 × (1 - (S - 50) / 450)

(ii) Exposures to SME corporates that are subject to the double default framework

Correlation (ρ_{os})

= 0.12 × (1 - EXP (-50 × PD_o)) / (1 - EXP (-50)) + 0.24 × [1 - (1 - EXP (-50 × PD_o)) / (1 - EXP (-50))] - 0.04 × (1 - (S - 50) / 450)

where S is expressed as the total annual revenue of the SME corporate (or the consolidated total annual revenue of the group of which the SME corporate is a member[27]) in millions of HK$ with the value of S falling in the range from HK$50

[27] An AI should treat an SME corporate and other corporates which are consolidated by the AI for risk management purposes as a consolidated group.

million to HK$500 million. Total annual revenue of less than HK$50 million will be deemed as equivalent to HK$50 million for the purpose of the firm-size adjustment. In the case where total annual revenue does not accurately reflect a corporate's scale of business, the MA may, on an exceptional basis, allow an AI to substitute the corporate's total assets for the total annual revenue in calculating the firm-size adjustment for the SME corporate.

(f) Exposures to certain financial institutions – Correlation adjustment by way of asset value correlation multiplier

69. For an AI's corporate, sovereign or bank exposure to an obligor that is (i) a ***large regulated financial institution***; or (ii) a ***financial institution*** that is not supervised by a ***financial regulator***, the AI must multiply the correlation (R) or correlation (ρ_{os}) in the risk weight function set out in paragraph 62 or 64, as the case requires, by 1.25.

70. For the purposes of paragraph 69,

- "financial institution" means an entity that-

  (a) is a ***financial sector entity***; or

  (b) is engaged predominantly in any one or more of the following activities, whether by itself or through any of its subsidiaries—

  (i) lending;
  (ii) factoring;
  (iii) provision of credit enhancement;
  (iv) securitization;
  (v) proprietary trading;
  (vi) any other financial services activity specified in Part 11 of Schedule 1 of the Rules;

- "financial regulator" means a regulatory authority that imposes supervisory standards (including supervisory standards relating to capital and liquidity) that are substantially consistent with international standards;

- "large regulated financial institution" means a financial institution that is supervised by a financial regulator and that—

  (a) has total assets of not less than HK$780 billion as determined by reference to the institution's most recent audited consolidated financial statements or (if the institution does not have any subsidiary) the institution's most recent audited financial statements; or

  (b) is a member of a group of companies (comprised of the ultimate holding company[28] and all of its subsidiaries) that has total assets of not less than

[28] There could be many forms and levels of consolidation in respect of a group of companies. To avoid any arbitrary specification, the HKMA intends to leverage on the consolidation requirements prescribed by generally acceptable accounting standards applicable to the financial groups. For the purposes of determining the total

HK$780 billion as determined by reference to the group's most recent audited consolidated financial statements.

71. To ensure that the information used for determining whether a financial institution is a large regulated financial institution is timely and accurate, the AI should obtain the total assets figures from the latest audited financial statements of the financial institution or its wider group, as the case requires, and have the figures updated at least annually.

72. For the avoidance of doubt, if an SME corporate that is subject to the firm-size adjustment mentioned in paragraph 68 is also a financial institution to which the asset value correlation multiplier requirements mentioned in paragraph 69 apply, an AI should apply the adjustments mentioned in both paragraphs to the correlation (R) or correlation (ρ_{os}) in the risk-weight function set out in paragraph 62 or 64, as the case requires.

(g) SL

73. The capital treatments set out in this subsection apply to all types of SL (see paragraph 15) unless otherwise specified.

74. An AI that meets the requirements for PD estimation under the IRB approach for its SL should use the foundation IRB approach (or the advanced IRB approach, where the AI can also provide the estimates of other credit risk components) to calculate the risk-weighted amount for such SL, based on the relevant risk-weight functions set out in paragraphs 61 to 72.

75. The use of the foundation IRB approach or the advanced IRB approach by an AI in respect of its HVCRE exposures is subject to the additional requirements set out in section 158(1A), (1B) and (1C) of the Rules, as highlighted below:-

(i) The value of the asset correlation factor of 0.24 in the correlation (R or ρ_{os}) in the risk-weight functions mentioned in paragraphs 62 and 64 must be replaced by a value of 0.30, and this must remain the case both before and after any adjustment is made to R or ρ_{os} pursuant to section 157(5) or 157A of the Rules (see paragraphs 69 and 76).

(ii) If an AI has material IPRE exposures (i.e. the average aggregate EAD of its reference exposures[29] over the past 12 months exceeds 5% of its capital base as determined under Part 3 of the Rules), it must not use the advanced IRB approach in respect of its HVCRE exposures unless the AI also uses the advanced IRB approach to derive the risk-weighted amount of all of its IPRE

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assets of the wider group of a financial institution under the definition of "large regulated financial institution", the top-most holding company included in the highest level of audited consolidated financial statements of a financial group (which comprises an ultimate holding company and all of its subsidiaries) should be regarded as the "ultimate holding company".

[29] Please see the definition of "***reference exposure***" under section 158(6) of the Rules for the various sources of IPRE exposures of AIs for this purpose.

exposures.

(iii) For an AI that started to use the advanced IRB approach for its HVCRE exposures at a time when it did not have any material IPRE exposures but which:

(a) subsequently becomes aware that it has material IPRE exposures; and
(b) does not also use the advanced IRB approach to derive the risk-weighted amount of all of its reference exposure[29],

the AI must cease to use the advanced IRB approach in respect of its HVCRE exposures after the expiry of a period of 6 months after the date on which the AI became so aware, unless the AI begins to use the advanced IRB approach for all of its reference exposures[29] within that 6-month period.

76. Subject to paragraph 75, an AI may make a firm-size adjustment as described in paragraph 68 to an HVCRE exposure that meets the size criteria for SME corporates set out in paragraph 17.

77. In respect of SL under supervisory slotting criteria approach, an AI should apply the risk-weight specified in the table below for the relevant supervisory rating grade to which a SL is assigned in calculating the risk-weighted amount of that SL.

	Strong	**Good**	**Satisfactory**	**Weak**	**Default**
A. SL (other than HVCRE exposures)					
(i) Remaining maturity of less than 2.5 years	50%	70%	115%	250%	0%
(ii) Remaining maturity of equal to or more than 2.5 years	70%	90%	115%	250%	0%
B. HVCRE exposures					
(i) Remaining maturity of less than 2.5 years	70%	95%	140%	250%	0%
(ii) Remaining maturity of equal to or more than 2.5 years	95%	120%	140%	250%	0%

78. An AI may assign a preferential risk-weight of –

(a) 50% to "strong" exposures and 70% to "good" exposures, as set out in row A(i) of the table above, in respect of its SL (other than HVCRE exposures and specified ADC exposures); and

(b) 70% to "strong" exposures and 95% to "good" exposures, as set out in row B(i) of the table above, in respect of its HVCRE exposures,

provided that the SL has a remaining maturity of less than 2.5 years, or the AI demonstrates to the satisfaction of the MA that the AI's credit underwriting criteria and the ability of the obligor in respect of the SL to withstand other risk characteristics are substantially stronger than the corresponding criteria for the equivalent supervisory rating grade as described in paragraph 16(i).

(h) LSTs arising from derivative contracts and SFTs

79. An AI may calculate the risk-weighted amount of the default risk exposure in respect of LSTs by multiplying the EAD of the exposure by the relevant risk-weight attributable to that exposure determined under the STC approach in accordance with Part 4 of the Rules. However, the positions of such exposures should still be reported in Form MA(BS)3(IIIc).

(B) Credit Risk Components

Probability of Default (PD)

80. For its corporate, sovereign and bank exposures, an AI should rate on an individual basis each legal entity to which the AI is exposed. In assigning a PD to individual obligors in a connected group, an AI may assign the same obligor grade in respect of exposures to these obligors (such an obligor grade reflects the benefits of group support in accordance with the established policy of the AI and is thus likely to be more favourable than if the individual obligors are rated on a standalone basis), provided the requirements of section 154(d) of the Rules are met. An AI is also required to set out in policies and put into operation a process for the identification of ***specific wrong-way risk*** for each legal entity to which the AI is exposed.

81. For corporate[30] and bank exposures, the PD of an exposure is the greater of the PD associated with the internal obligor grade to which that exposure is assigned, or 0.03%.

82. Under the double default framework, PD_o and PD_g (see paragraph 64) are the PD associated with the internal obligor grade of the underlying obligor and the credit protection provider, respectively, and both are also subject to the PD floor of 0.03%.

83. For sovereign exposures, the PD of an exposure is the PD associated with the internal obligor grade to which that exposure is assigned (i.e. without any PD floor).

84. For corporate, sovereign and bank exposures, the PD of an exposure assigned to a default grade (i.e. a default of the obligor in respect of the exposure has occurred by

[30] In estimating the PD of a holding company which has both consolidated and unconsolidated (i.e. company level) financial statements, an AI should assess the financial strength of the company on both bases. If these two bases suggest two different PDs, the AI should use the higher one.

virtue of section 149(1) or (5A) of the Rules) is 100%.

85. When estimating the PD for an obligor that is highly leveraged or whose assets are predominantly traded assets, ensure such estimate reflects the performance of the obligor's assets based on volatilities calibrated to data from periods of significant financial stress. Forms and measures of leverage have proliferated, and will continue to evolve, as a result of financial innovation (in terms of products and trading strategies) and changes in market sentiment. While markets can, and apparently do, have a prevailing "sense" of which counterparties are regarded as "highly leveraged" (e.g. hedge funds and other equivalently highly leveraged financial sector entities), it appears that no market consensus has yet been reached on specific set(s) of definitive quantitative criteria for determining whether a counterparty is highly leveraged. AIs should therefore make their own judgement on whether an obligor should be considered "highly leveraged" in a prudent and consistent manner, having regard to the risk characteristics of their obligors and prevailing market perceptions of them as well as the nature of the markets in which they operate. A similar approach could be deployed in determining whether the assets of a particular counterparty are "predominantly" traded assets.

***Loss Given Default* (LGD)**

86. An AI should provide an estimate of the LGD for each corporate, sovereign and bank exposure. There are two approaches for deriving this LGD estimate: the foundation IRB approach or the advanced IRB approach.

LGD under foundation IRB approach

(a) Treatment of exposures which are unsecured or secured by non-recognized collateral under foundation IRB approach

87. Subject to paragraphs 89 and 90, for corporate, sovereign and bank exposures, a senior exposure[31] that is unsecured or secured by a non-recognized collateral should be assigned a LGD of 45%.

88. Subject to paragraphs 89 and 90, for corporate, sovereign and bank exposures, a subordinated exposure[32] should be assigned a LGD of 75%.

(b) Treatment of transactions with specific wrong-way risk under foundation IRB approach

[31] A senior exposure means an exposure to an obligor which is not a subordinated exposure.

[32] A subordinated exposure means an exposure to an obligor which is lower in ranking, or junior, to other claims against the obligor in terms of the priority of repayment or which will be repaid only after all the senior claims against the obligor have been repaid.

89. For default risk exposures in respect of single-name credit default swaps, where the swaps fall within section 226J(1) of the Rules and those exposures are determined in accordance with section 226J(3) of the Rules, the exposures should be assigned a supervisory estimate of 100% for the LGD.

90. For default risk exposures in respect of transactions that fall within section 226J(4) of the Rules, the exposures should be assigned a supervisory estimate of 100% for the LGD if the AI has the MA's approval to calculate ***incremental risk charge*** for the transactions and the determination of the default risk exposures under that section has used existing calculations for incremental risk charge that already contain an LGD assumption.

(c) ***Recognized collateral*** *under foundation IRB approach*

91. The following collateral can be recognized for senior exposures under the foundation IRB approach:

(i) ***recognized financial collateral*** –

- includes any collateral which can be recognized under the ***comprehensive approach***[33] to the treatment of collateral under the STC approach;
- but does not include any collateral in the form of real property, or any collateral in the form of debt securities that would fall within the definition of re-securitization exposure in section 2(1) of the Rules if treated as an on-balance sheet exposure; and

(ii) ***recognized IRB collateral*** – these include:

- financial receivables which fall within section 205 of the Rules (recognized financial receivables);
- commercial real estate (recognized CRE) and residential real estate (recognized RRE) which fall within section 206 or 208 of the Rules; and
- physical assets (other than recognized CRE or recognized RRE) which fall within section 207 or 208 of the Rules (other recognized IRB collateral).

(d) Methodology for recognition of recognized financial collateral under foundation IRB approach

92. The methodology for recognition of recognized financial collateral closely follows the comprehensive approach under the STC approach. The effective LGD (LGD*) applicable to a senior exposure with recognized financial collateral is expressed as follows:

[33] The simple approach to the treatment of collateral under the STC approach is not available to an AI applying the IRB approach.

LGD* = LGD x (E* / E)

Where:

LGD = The supervisory estimate of the LGD specified in paragraph 87, 89 or 90, as the case may be, before recognition of recognized financial collateral

E = EAD of the exposure

E* = Net credit exposure (being the EAD of the exposure after recognition of recognized financial collateral[34])

93. E* is calculated as follows:

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

Where:

H_e = ***Haircut*** applicable to the exposure pursuant to the ***standard supervisory haircuts*** subject to adjustment as set out in section 92 of the Rules

C = Current market value of recognized financial collateral before adjustment required by the comprehensive approach to treatment of recognized collateral

H_c = Haircut applicable to recognized financial collateral pursuant to the standard supervisory haircuts subject to adjustment as set out in section 92 of the Rules

H_{fx} = Haircut applicable in consequence of a ***currency mismatch*** (if any) pursuant to the standard supervisory haircuts subject to adjustment as set out in section 92 of the Rules

In calculating the net credit exposure (E*), haircuts should be applied to the value of the exposure (H_e) and the value of the collateral (H_c) for any possible future price fluctuations. Where there is a currency mismatch between the exposure and the collateral, a further haircut (H_{fx}) should be applied to the collateral to provide allowance for any possible fluctuation in exchange rates. An AI should refer to Schedule 7 to the Rules which sets out the standard supervisory haircuts and the circumstances requiring a haircut adjustment (i.e. based on the frequency of remargining or revaluation) under the comprehensive approach. Where there is ***maturity*** mismatch between the exposure and the collateral, the AI should adjust the value of the collateral in accordance with paragraphs 227 to 229.

94. As in the STC approach, a 0% haircut is applied to repo-style transactions that are treated as collateralized loans to the counterparty if the criteria for the preferential treatment under the comprehensive approach as set out in section 82(2) of the Rules are satisfied.

[34] This concept is only applied to the calculation of LGD*. An AI should continue to calculate EAD without taking into account the presence of any collateral, unless otherwise specified.

(e) *Methodology for recognition of recognized IRB collateral under foundation IRB approach*

95. The methodology for determining the LGD* of a senior exposure under the foundation IRB approach for cases where an AI has taken recognized IRB collateral is set out as follows:

(i) exposures where the ratio of the current market value of the collateral received (C) to the EAD of the exposure (E) is below a threshold level of C* (i.e. the required minimum collateralization level for the exposure) will be treated as an unsecured exposure subject to a LGD specified in paragraph 87, 89 or 90, as the case may be; and

(ii) exposures where the ratio of (C) to (E) exceeds another threshold level of C** (i.e. the required level of over-collateralization for full LGD recognition) will be assigned a LGD according to the table below:

Recognized IRB collateral	**Supervisory estimate of LGD**	**Required minimum collateralization for partial recognition (C*)**	**Required level of over-collateralization for full recognition (C**)**
Recognized financial receivables	35%	0%	125%
Recognized CRE/ RRE	35%	30%	140%
Other recognized IRB collateral	40%	30%	140%

96. Under the foundation IRB approach, if the ratio of C to E of a senior exposure exceeds a threshold of level C* but not a threshold of level C**, the LGD* for the collateralized and uncollateralized portions of the exposure is determined as follows:

(i) the part of the exposure considered to be fully collateralized (i.e. C/C**) receives the LGD associated with the type of collateral according to the table in paragraph 95; and

(ii) the remaining part of the exposure is regarded as uncollateralized (i.e. E - C/C**) and receives a LGD specified in paragraph 87, 89 or 90, as the case may be.

(f) *Methodology for recognition of pools of recognized collateral under foundation IRB approach*

97. The methodology for determining the LGD* of an exposure under the foundation IRB

approach for cases where an AI has taken both recognized financial collateral and recognized IRB collateral is aligned with the treatment in the STC approach and based on the following guidance:

(i) where an AI has obtained multiple forms of collateral recognized under the foundation IRB approach for an exposure, the AI should divide the exposure into:
- the portion fully collateralized by recognized financial collateral (after taking into account various haircuts and the adjustment for maturity mismatch in determining the value of the recognized financial collateral);
- the portion fully collateralized by recognized financial receivables;
- the portion fully collateralized by recognized CRE/RRE;
- the portion fully collateralized by other recognized IRB collateral;
- the portion, if any, which is uncollateralized.

(ii) where the ratio of the sum of the current market value of recognized CRE/RRE and other recognized IRB collateral to the remaining EAD of the exposure (i.e. after taking into account the credit risk mitigating effect of recognized financial collateral and recognized financial receivables) is below the threshold level C* (i.e. 30%), the AI should assign a LGD specified in paragraph 87, 89 or 90, as the case may be, to the remaining exposure.

(iii) the AI should calculate the risk-weighted amount of each fully secured portion of exposure separately.

LGD under Advanced IRB Approach

98. Except for the exposures specified in paragraph 99, an AI using the advanced IRB approach is allowed to use its own internal estimates of LGD for corporate, sovereign and bank exposures. The LGD should be measured as a percentage of the EAD.

99. For a facility type that comprises default risk exposures in respect of single-name credit default swaps that fall within the description of paragraph 89 or transactions that fall within the description of paragraph 90, an AI must comply with the requirements of the applicable paragraph as if the institution were an AI that uses the foundation IRB approach.

LGD under Double Default Framework

100. For the purposes of calculating the risk-weighted amount of hedged exposures under the double default framework, LGD_g is the LGD of a comparable direct exposure to the credit protection provider (see paragraph 64). That means, LGD_g will be the LGD of the exposure to the credit protection provider or an ***unhedged exposure*** to the underlying obligor, depending upon whether in the event both the credit protection provider and the underlying obligor default during the life of the hedged exposure, available evidence and the structure of the guarantee/credit derivative contract

indicate that the amount recovered would depend on the financial condition of the credit protection provider or the underlying obligor, as the case may be.

101. In estimating the LGD_g, an AI may recognize collateral provided exclusively against the exposure or the guarantee/credit derivative contract respectively. There should be no consideration of double recovery in the LGD estimate.

***Exposure at Default* (EAD)**

102. The EAD of an exposure is measured without deduction of specific provisions and partial write-offs.

103. In relation to an on-balance sheet exposure, an AI should use the current drawn amount of the exposure (for an exposure that is measured at fair value, the current drawn amount is the value determined in accordance with section 4A of the Rules), after taking into account the credit risk mitigating effect of any recognized netting (see Part XIII of this section), as an estimate of the EAD of the exposure such that the EAD of the exposure is not less than the sum of:

(i) the amount by which the AI's CET1 capital would be reduced if the exposure were fully written-off; and

(ii) any specific provisions and partial write-offs in respect of the exposure.

Where the amount by which an AI's estimate of EAD in respect of an exposure exceeds the sum of items (i) and (ii) of the exposure, this amount is termed a discount. The calculation of the risk-weighted amount should be independent of any discounts. In calculating the eligible provisions for the purpose of the EL-eligible provisions calculation as set out in Section C, any discounts attributed to defaulted exposures should be included.

104. In relation to the calculation of EAD of off-balance sheet exposures, an AI should refer to Part XII of this section.

***Effective Maturity* (M)**

(a) M under foundation IRB approach

105. For an AI using the foundation IRB approach for corporate, sovereign and bank exposures, M will be 2.5 years except for repo-style transactions where M will be 6 months[35].

(b) M under advanced IRB approach

[35] With the prior consent of the MA, an AI using the foundation IRB approach may calculate M for each exposure in accordance with paragraphs 106 to 108 if the AI can demonstrate that it has adequate systems for doing so.

106. An AI using the advanced IRB approach for corporate, sovereign and bank exposures is required to calculate M for each exposure. Subject to paragraph 107, M is defined as the greater of one year or the remaining effective maturity, in years, of the exposure as defined below:

(i) subject to items (ii), (iii) and (iv), for an exposure subject to a predetermined cash flow schedule, M is defined as:

$$M = \sum_t t * CF_t / \sum_t CF_t$$

where CF_t denotes cash flows (including principal, interest payments and fees) contractually payable by the obligor in period t. Period t is expressed in years (that is, where a payment is due to be received in 18 months, t = 1.5);

(ii) if the exposure is a default risk exposure in respect of a ***netting set*** calculated using the IMM(CCR) approach and the original maturity of the longest-dated contract contained in the netting set is greater than one year, the M of the exposure is calculated by:

$$M = \frac{\sum_{k=1}^{t_k \le 1\,year} \text{Effective EE}_k \times \Delta t_k \times df_k + \sum_{t_k > 1\,year}^{maturity} EE_k \times \Delta t_k \times df_k}{\sum_{k=1}^{t_k \le 1\,year} \text{Effective EE}_k \times \Delta t_k \times df_k}$$

Where –

- df_k is the risk-free discount factor for future time period t_k;
- Effective EE_k = effective EE at time t_k calculated in accordance with section 226G of the Rules;
- *maturity* = the time when the transaction which has the longest residual maturity in the netting set matures; and
- $\Delta t_k = t_k - t_{k-1}$ is the time interval between t_k and t_{k-1} when EE is calculated at dates that are not equally spaced over time;

(iii) subject to item (iv),

- if the exposure is a default risk exposure in respect of a netting set calculated using the IMM(CCR) approach and all the transactions in the netting set have an original maturity of not more than one year, the effective maturity of each transaction in the netting set is calculated by the use of the formula under item (i), and the effective maturity of the netting set is calculated as the weighted average effective maturity of the transactions (using the ***notional amount*** of each transaction for weighting the maturity of the transactions within the netting set); and

- if the netting set referred to in the bullet above contains only one transaction, the M of the exposure is calculated by the use of the formula under item (i);

(iv) if it is not practicable for an AI to calculate M of the contracted payments in accordance with item (i) or (iii), the AI should use a more prudent measure of M which is not less than the maximum remaining time, in years, that the obligor is permitted to take to fully discharge its contractual obligations (including principal payments, interest payments and fees) under the terms of the agreement governing the exposure. This usually corresponds to the nominal maturity of the exposure; and

(v) subject to items (ii) and (iii), if an exposure is a default risk exposure resulting from the netting of ***nettable*** derivative contract, the M of the exposure is the greater of the weighted average maturity of the contracts (using the notional amount of each contract for weighting the maturity of the contracts) or one year.

In all cases, M will be no greater than five years.

107. The one-year floor does not apply to the following exposures:

(i) fully or almost fully collateralized capital market-driven transactions (i.e. derivative contracts or margin lending transactions), or repo-style transactions with an original maturity of less than one year, where the documentation for the contract or transaction contains clauses requiring daily revaluation or re-margining and allowing for the prompt realization or set-off of the collateral in the event of default or failure to revalue or re-margin, as the case may be; and

(ii) exposures with an original maturity of less than one year which are not part of an AI's ongoing financing (i.e. there being no intent or legal obligation to roll over the exposure concerned in the future) of the obligor. These exposures include:

- short-term self-liquidating trade transactions (such as an import or export letter of credit, or any similar transaction, which can be accounted for at its actual remaining maturity);

- securities purchases or sales, cash settlement by wire transfer, foreign exchange settlement, or any other exposures arising from unsettled transactions that are entered into on a basis other than a delivery-versus-payment basis, provided that such exposures do not continue for five ***business days*** or more after the settlement date; and

- any other short-term exposures that an AI demonstrates to the satisfaction of the MA that the AI has no intent or legal obligation to roll over such exposures and will not, in practice, roll over the exposures.

M of these exposures is calculated as the greater of one day or that measured in accordance with paragraph 106(i) or (iv).

108. Where an exposure of an AI is in respect of a netting set in which all the contracts or transactions fall within the description in paragraph 107(i) :

(i) subject to items (ii) and (iii), the AI must calculate the M of the exposure in accordance with paragraph 106(v) except that the M need not be equal to or greater than one year;

(ii) subject to item (iii), if the exposure is a default risk exposure calculated using the IMM(CCR) approach, the AI must calculate the M in accordance with paragraph 106(iii) except that the M need not be equal to or greater than one year; and

(iii) in determining the M, the AI must apply a minimum level of M equal to –

(a) 10 days for a netting set that contains derivative contracts or margin lending transactions;

(b) 5 days for a netting set that contains repo-style transactions; and

(c) 10 days for a netting set that contains transactions or contracts that fall within both items (a) and (b).

(c) M under the double default framework

109. For hedged exposures that are subject to the double default framework, M_{os} of the exposure should be the greater of:

(i) one year; or

(ii) the M of the credit protection in respect of the hedged exposure as calculated in accordance with paragraph 106.

V. Retail Exposures

(A) Risk-weight Function for Derivation of Risk-weighted Amount

110. There are three separate risk-weight functions for retail exposures as set out in paragraphs 111 to 113. The risk-weights for retail exposures are based on separate assessments of PD and LGD as inputs to the risk-weight functions. The calculation of the risk-weighted amount for retail exposures does not require the input of M.

(a) Non-defaulted exposures

RM

111. For retail exposures which fall within the IRB subclass of RM to individuals (see

paragraph 24) or RM to property-holding shell companies (see paragraph 25) that are not in default (whether secured or partially secured[36]), the risk-weighted amount is calculated as follows:

Correlation (R) = 0.15

Capital charge factor (K)

= LGD × N[(1 - R)^-0.5 × G (PD) + (R / (1 - R))^0.5 × G (0.999)] - PD x LGD

Risk-weight (RW) = K x 12.5

Risk-weighted amount = RW x EAD

QRRE

112. For retail exposures which fall within the IRB subclass of QRRE (see paragraph 26) that are not in default, the risk-weighted amount is calculated as below:

Correlation (R) = 0.04

Capital charge factor (K)

= LGD × N[(1 - R)^-0.5 × G (PD) + (R / (1 - R))^0.5 × G (0.999)] - PD x LGD

Risk-weight (RW) = K x 12.5

Risk-weighted amount = RW x EAD

Small Business Retail Exposures and Other Retail Exposures to Individuals

113. For retail exposures which fall within the IRB subclasses of small business retail exposures[37] (see paragraph 27) or other retail exposures to individuals (see paragraph 28) that are not in default, the risk-weighted amount is calculated as below:

Correlation (R)[38]

= 0.03 × (1 - EXP (-35 × PD)) / (1 - EXP (-35)) + 0.16 × [1 - (1 - EXP (-35 × PD)) / (1 - EXP (-35))]

Capital charge factor (K)

= LGD × N[(1 - R)^-0.5 × G (PD) + (R / (1 - R))^0.5 × G (0.999)] - PD x LGD

Risk-weight (RW) = K x 12.5

Risk-weighted amount = RW x EAD

[36] This means that the risk-weight also applies to the unsecured portion of such RMs.

[37] Where an AI intends to apply a double default framework to small business retail exposures, such exposures should be re-classified as corporate exposures because they should no longer be managed on a pooled or portfolio basis.

[38] Correlation (R) is allowed to vary with PD.

(b) Defaulted exposures

114. An AI should use the same risk-weight function set out in paragraph 111, 112 or 113, as the case may be, to calculate the risk-weighted amount of a retail exposure which is in default (i.e. a default of the obligor in respect of the exposure has occurred by virtue of section 149(1) or (5A) of the Rules), except that the capital charge factor (K) for a defaulted retail exposure should be equal to the greater of:

(i) zero; or

(ii) the figure resulting from the subtraction of the AI's best estimate of the EL from the LGD of the exposure.

(B) Credit Risk Components

Probability of Default (PD) and Loss Given Default (LGD)

115. For each identified pool of retail exposures, an AI using the retail IRB approach should provide an estimate of the PD and LGD associated with the pool. The PD for a retail exposure is the greater of the PD associated with the pool to which the retail exposure is assigned or 0.03%. The PD of a retail exposure assigned to a default pool is 100%.

116. Owing to the potential for a very long run cycle in property prices which even comparatively long runs of data may not adequately capture, the estimate of LGD of a retail exposure which falls within the IRB subclass of RM to individuals or RM to property-holding shell companies cannot be set below 10%[39].

Exposure at Default (EAD)

117. The EAD of an exposure is measured without deduction of specific provisions and partial write-offs.

118. In relation to an on-balance sheet exposure, an AI should use the current drawn amount of the exposure (for an exposure that is measured at fair value, the current drawn amount is the value determined in accordance with section 4A of the Rules), after taking into account the credit risk mitigating effect of any recognized netting (see Part XIII of this section), as an estimate of the EAD of the exposure such that the EAD of the exposure is not less than the sum of:

[39] The 10% LGD floor should not apply, however, to sub-segments that are subject to, or benefit from, recognized guarantees issued by sovereigns. Furthermore, the existence of the floor does not imply any waiver of the requirements of LGD estimation.

(i) the amount by which an AI's CET1 capital would be reduced if the exposure were fully written-off; and

(ii) any specific provisions and partial write-offs in respect of the exposure.

Where the amount by which an AI's estimate of EAD in respect of an exposure exceeds the sum of items (i) and (ii) of the exposure, this amount is termed a discount. The calculation of the risk-weighted amount should be independent of any discounts. In calculating the eligible provisions for the purpose of the EL-eligible provisions calculation as set out in Section C, any discounts attributed to defaulted exposures should be included.

119. In relation to the calculation of EAD of off-balance sheet exposures, an AI should refer to Part XII of this section.

VI. Equity Exposures

(A) Derivation of Risk-weighted Amount of Equity Exposures (other than CIS exposures)

120. An AI is allowed to use either the market-based approach or the PD/LGD approach to calculate the risk-weighted amount of its equity exposures held in the banking book, subject to fulfilling the relevant requirements set out in the Rules including paragraphs 121 and 122 below. In addition, the AI should demonstrate to the satisfaction of the MA that the approach employed:

(i) is appropriate for the AI's portfolios of equity exposures;

(ii) is applied consistently to those portfolios; and

(iii) is not used for the purpose of ***regulatory capital arbitrage***.

121. Subject to section 43(1)(n) of the Rules, where the net book value of an AI's holdings referred to in subparagraph (i) or (ii) below exceeds 15% of the capital base of the AI as reported in its Form MA(BS)3 as at the immediately preceding calendar quarter end date, the AI must allocate a risk-weight of 1250% to the EAD of that amount of the net book value of the holdings that exceeds that 15% in the calculation of the risk-weighted amount of that portion of the equity exposure –

(i) the AI's holdings of shares in any ***commercial entity*** if the holdings amount to more than 10% of the ordinary shares issued by that commercial entity; and

(ii) the AI's holdings of shares in any commercial entity if that entity is an ***affiliate*** of the AI.

122. An AI must calculate the risk-weighted amount of an equity exposure to a financial sector entity that is a ***significant LAC investment*** by multiplying that portion of the EAD of the equity exposure that is not subject to deduction from the AI's CET1

capital under section 43(1)(p) of the Rules by a risk-weight of 250%.

123. An AI's holding of any ***insignificant LAC investment*** and ***non-capital LAC liability*** falling within section 48A of the Rules which are not subject to deduction from any of the AI's CET1 capital, Additional Tier 1 capital and Tier 2 capital under sections 43(1)(o), 47(1)(c), 48(1)(c) and 48(1)(g) of the Rules must be risk-weighted in accordance with this Part.

(a) Market-based approach

124. Under this approach, an AI is permitted to calculate the risk-weighted amount of its equity exposures held in the banking book using one or both of the following two separate and distinct methods:

(i) Simple risk-weight method

A 300% risk-weight is to be applied to equity exposure in a publicly traded company (being an equity security traded on a ***recognized exchange***) and a 400% risk-weight is to be applied to all other equity exposures.

Short positions in an equity exposure (including derivative instruments) held in the banking book are permitted to offset long positions in the same equity exposure, provided that these short positions have been explicitly designated as a hedge of the long positions in that equity exposure and that they have a remaining maturity of at least one year. Other short positions (including the net short position remains after the set-off) are to be treated as if they were long positions with the relevant risk-weight applied to the absolute value of each position. In the context of maturity mismatched positions, the treatment is set out in paragraphs 227 to 229.

(ii) Internal models method

An AI may use its ***internal model***s to calculate the risk-weighted amount of its equity exposures, subject to fulfilling the relevant requirements set out in the Rules. Under this method, the AI should calculate the risk-weighted amount of its equity exposures by multiplying the potential loss of its equity exposures as derived by using its internal models (e.g. VaR models) subject to the one-tailed 99% ***confidence interval*** of the difference between quarterly returns of the exposures and an appropriate risk-free rate computed over a long-term observation period (i.e. not less than three years) by 12.5.

The risk-weighted amount calculated under the internal models method should be no less than the risk-weighted amount calculated under the simple risk-weight method using a 200% risk-weight for equity exposure in a publicly traded company and a 300% risk-weight for all other equity exposures. Such minimum risk-weighted amount should be calculated separately using the simple risk-weight method at individual exposure level rather than at portfolio level.

125. An AI may use more than one market-based approach for its different equity portfolios[40], provided that the AI can demonstrate to the satisfaction of the MA that:

(i) this is justified having regard to the respective risk profiles of the portfolios; and

(ii) the AI uses different risk assessment methods for the portfolios in its internal risk management functions.

(b) PD/LGD approach

126. The minimum requirements and methodology for calculating the risk-weighted amount of equity exposures under the PD/LGD approach are the same as those for the foundation IRB approach for corporate exposures, except that:

(i) the EAD in respect of an equity exposure should be determined in accordance with paragraph 134;

(ii) if the AI has an equity exposure to a corporate but does not have a debt exposure to that corporate such that the AI does not have sufficient information on the corporate for the application of the prescribed default criteria[41] as set out in the Rules, the AI should calculate the risk-weighted amount of the equity exposure such that:

- if the EAD of the AI's equity exposures to the corporate is not more than 15% of the AI's total equity exposures, the AI calculates the risk-weighted amount of the equity exposure by multiplying the EAD of the exposure by the product of the risk-weight as derived from using the risk-weight function set out in paragraph 62 (where applicable, adjusted in accordance with paragraph 68 in respect of exposures to SME corporates or in accordance with paragraph 69 in respect of exposures to financial institutions that are subject to the asset value correlation multiplier) and a factor of 1.5;

- if the EAD of the AI's equity exposures to the corporate exceeds 15% of the AI's total equity exposures, the AI applies the simple risk-weight method set out in paragraph 124(i);

(iii) an LGD of 90%[42] is assumed for deriving the risk-weight of an equity exposure; and

(iv) M is assumed to be five years.

[40] For example, the AI may apply the simple risk-weight method to its non-listed equity exposures while the internal models method to its listed equity exposures.

[41] In practice, if there are both an equity exposure and a debt exposure to the same counterparty, a default on the debt exposure would thus trigger a simultaneous default for regulatory purposes on the equity exposure.

[42] There is no advanced approach for equity exposures.

127. When estimating the PD for an obligor that is highly leveraged or whose assets are predominantly traded assets, ensure such estimate reflects the performance of the obligor's assets based on volatilities calibrated to data from periods of significant financial stress (also see paragraph 85).

128. Hedging for equity exposures under the PD/LGD approach is subject to an LGD of 90% in respect of the exposure to the seller of the hedge. For this purpose, equity exposures will be treated as having a five-year maturity.

129. Under the PD/LGD approach, when the sum of UL and EL in respect of an equity exposure results in lesser capital than would be required from application of one of the minimum risk-weights set out in paragraphs 130 and 131, the minimum risk-weights should be used. In other words, the minimum risk-weight should be applied, if the risk-weight calculated according to paragraph 126 plus the EL in respect of an equity exposure (i.e. EL for non-defaulted exposures = PD x LGD while EL for defaulted exposures = an AI's best estimate of EL) multiplied by 12.5 is less than the minimum risk-weight applicable to the exposure.

130. A minimum risk-weight of 100% applies to the following types of equity exposures as long as the portfolio is managed in the manner outlined below:

(i) publicly traded equity exposures held for long-term investment – equity exposures in publicly traded companies where the investment is part of a long-term customer relationship, any capital gains are not expected to be realized in the short-term in accordance with the AI's investment policy and there is no anticipation of above trend capital gains in the long-term. It is expected that in almost all cases, the AI will have lending and/or general banking relationships with the portfolio company so that the estimated PD is readily available. Given their long-term nature, specification of an appropriate holding period for such investments merits careful consideration. In general, the AI is expected to hold the equity over the long-term (at least five years); and

(ii) privately owned equity exposures held for long-term investment – equity exposures in privately owned companies where the returns on the exposures are based on regular and periodic cash flows not derived from capital gains and there is no expectation of future above trend capital gain, or realization of any existing gain in the short-term, in accordance with the AI's investment policy.

131. For all other equity positions, including net short positions (see paragraph 124(i)), the minimum risk-weights are 200% for publicly traded equity exposures and 300% for all other equity exposures.

132. A risk-weight of 1250% must be applied if the risk-weight calculated in accordance with paragraph 126 plus the EL in respect of an equity exposure multiplied by 12.5 exceeds 1250%.

133. An AI must allocate a risk-weight of 1250% to the EL amount of the equity exposures subject to the PD/LGD approach as determined in accordance with section 223 of the Rules, and add the product of the 2 items to the risk-weighted amount of the AI's

equity exposures.

(B) Credit Risk Components (for equity exposures other than CIS exposures)

Exposure at Default (EAD)

134. In general, the measure of EAD for an equity exposure, on which the calculation of the risk-weighted amount is based, is:

(i) if the equity exposure is measured at fair value, the value determined in accordance with section 4A of the Rules; and

(ii) if the equity exposure is not measured at fair value, the cost presented on the balance sheet.

(C) Derivation of Risk-weighted Amount of CIS exposures

135. An AI must determine the risk-weighted amount of a CIS exposure to a collective investment scheme not constituting deductible holding in accordance with Part 6B of the Rules.

136. An AI which uses the IRB approach to calculate the risk-weighted amount for its CIS exposure[43] should particularly note the specific capital treatments that apply to particular circumstances by referring to the relevant sections in the Rules set out in the table below:

(i) when ***look-through approach*** (LTA) or ***mandate-based approach*** (MBA) is used,

	LTA	**MBA**
(a) If the underlying exposure of a collective investment scheme is a capital investment in a commercial entity	Section 226ZO(3)(c) of the Rules	Section 226ZR(3)(c) of the Rules

[43] This refers to "IRB AI" in Part 6B of the Rules. AIs which are exempted from using the IRB approach for its equity exposures (including the CIS exposures) under section 12(2)(a) of the Rules are classified as "exempted IRB AI" in Part 6B of the Rules. The capital treatment of CIS exposures for exempted IRB AIs is generally the same as that for STC AIs and exempted IRB AIs should report the return data of their CIS exposures in Form MA(BS)3(IIIb).

	LTA	MBA
(b) If the underlying exposure is an exposure to CVA risk in respect of (i) derivative contracts or (ii) SFTs entered into by the scheme	Section 226ZO(4)(a), (b)(i)(C) & (ii) and (5) of the Rules	Section 226ZR(4)(a), (b)(i)(C) & (ii) and (5) of the Rules
(c) If the underlying exposure is not a CIS exposure to another collective investment scheme or the one mentioned in (a) and (b) above	Section 226ZO(6)(c) of the Rules	Section 226ZR(6)(c) of the Rules
(d) If it is not feasible for an AI to use the IRB calculation approaches set out in Table 17 of Part 6 or the SEC-IRBA under Part 7 of the Rules, to determine the risk-weighted amount of the underlying exposure	Section 226ZO(7) of the Rules	N/A
(e) If the AI is granted an exemption under section 12(2)(a) of the Rules, in relation to an underlying exposure of a collective investment scheme that is the one mentioned in (a), (b)(ii) or (c) above and such underlying exposure is not a securitization exposure	Section 226ZO(8) of the Rules	N/A

(ii) when ***third-party approach*** (TPA) is used, the third party should calculate the third-party output in accordance with section 226ZN(3) of the Rules.

137. To avoid doubt,

(i) if an AI's CIS exposure to a Level 1 CIS or Level n+1 CIS (or any part of such CIS exposure) constitutes one or more than one deductible holding of the AI, such CIS exposure must continue to be subject to the requirement set out in Division 4 of Part 3, section 183(1) and (7) of the Rules, where appropriate;

(ii) if an AI that uses TPA to determine the risk-weighted amount of the underlying exposures of a Level 1 CIS has sufficient information that its CIS exposure to a Level 1 CIS (or any part of such CIS exposure) constitutes one or more than one deductible holding of the AI, such CIS exposure must continue to be subject to the requirement set out in Division 4 of Part 3, section 183(1) and (7) of the Rules, where appropriate; and

(iii) if an AI's deductible holding is subject to risk-weighting according to section 183(1) of the Rules, the AI must only use either the market-based approach or the PD/LGD approach to risk-weight the deductible holding.

138. An AI may refer to Annex IIIa and IIIb-B for examples illustrating how the risk-weighted amount of CIS exposures should be determined. Although risk-weights

under the STC approach are used in the examples for illustration, the calculation steps illustrated also apply to the IRB approach, except that the AI should determine the risk-weighted amount of its CIS exposure constituting deductible holdings and the amount of capital deduction in accordance with section 183(1) or (7) or Division 4 of Part 3 of the Rules.

VII. Other Exposures

(A) Cash Items

139. The risk-weighted amount of cash items is calculated by multiplying the EAD (i.e., the principal amount) of each item by an applicable risk-weight as specified below:

	Cash items	Risk-weight
1.	**Notes and coins** *This item includes all notes and coins that are the lawful currency of a jurisdiction.*	0%
2.	**Government certificates of indebtedness** *This item represents the certificates of indebtedness issued by the HKSAR Government for the issue of legal tender notes.*	0%
3.	**Gold bullion held in own vault or on an allocated basis, to the extent backed by gold liabilities** *This item includes all gold bullion held by the AI or held by another person for the AI on an allocated basis, to the extent backed by gold bullion liabilities. Gold bullion held by the AI for other persons should not be reported. Gold bullion held by another person for the AI on an unallocated basis, although backed by the AI's gold bullion liabilities, should be treated as an exposure to a counterparty and risk-weighted according to the IRB class/subclass to which that counterparty belongs.*	0%
4.	**Gold bullion held not backed by gold liabilities** *This item includes all gold bullion held by the AI or held by another person for the AI, to the extent not backed by the AI's gold bullion liabilities.*	100%
5.	**Cash items in the course of collection** *(a) This item includes all cheques, drafts and other items drawn on other banks that are payable to the account of the AI immediately upon presentation and that are in the process of collection. Included are cheques and drafts against which the AI has purchased or discounted the cheques presented by its customer and in respect of which*	20%

	Cash items	Risk-weight
	the AI is now seeking payment from the drawee bank. *(b) Unsettled clearing items that are being processed through any interbank clearing system in Hong Kong and receivables from transactions in securities (other than repo-style transactions), foreign exchange, and commodities which are not yet due for settlement should, however, be subject to a risk-weight of 0%.* *Import and export trade bills held by the AI that are in the process of collection should not be included in cash items but should be risk-weighted according to the IRB class/subclass to which the counterparty belongs.*	0%
6.	**Positive current exposures from delivery-versus-payment transactions which remain unsettled after the settlement date** **(a) for up to 4 business days** **(b) for 5 to 15 business days** **(c) for 16 to 30 business days** **(d) for 31 to 45 business days** **(e) for 46 or more business days** *This item refers to any **positive current exposure** arising from transactions in securities (other than repo-style transactions), foreign exchange and commodities entered into on a **delivery-versus-payment** (DvP) **basis** where payment/delivery has not yet taken place after the settlement date.*	 0% 100% 625% 937.5% 1250%
7.	**Amount due from transactions entered into on a basis other than a DvP basis** (non-DvP transactions) **and which remain unsettled for up to 4 business days after the settlement date (for non-significant amount only)** *This item refers to any non-DvP transaction where an AI has made payment/delivery to a counterparty but payment/delivery from the counterparty has not yet taken place up to and including the fourth business day after the settlement date. Such transactions should be treated as a loan provided by the AI to the counterparty and risk-weighted according to the IRB class/subclass to which that counterparty belongs. The EAD of such transactions should be the amount of the payment made or the current market value of the thing delivered by the AI, plus any positive current exposure associated with the transactions. However, if the EAD of a transaction is immaterial (i.e. less than HK$10 million), the AI may choose to report such exposures under this item and apply a uniform 100% risk-weight to them in*	100%

	Cash items	Risk-weight
	order to avoid performing a full credit assessment.	
8.	**Amount due from transactions entered into on a basis other than a DvP basis and which remain unsettled for 5 or more business days after the settlement date** *This item refers to any non-DvP transactions in securities (other than repo-style transactions), or transactions in foreign exchange and commodities, that have remained unsettled after the contractual date of payment or delivery to the AI for 5 or more business days. The EAD of such transactions should be the amounts of payment made or the current market value of the thing delivered by the AI, plus any positive current exposure associated with the transactions.*	1250%

(B) <u>Other Items</u>

140. The risk-weighted amount of other items is calculated by multiplying the EAD (i.e. the principal amount) of each item by a uniform risk-weight of 100%, or a higher risk-weight specified by the MA if the MA is of the view that a particular exposure item poses a higher risk to the AI.

	Other items	Risk-weight
1.	**Premises, plant and equipment, other fixed assets for own use, and other interest in land and buildings** *This item includes investments in premises, plant and equipment and all other fixed assets of the AI which are held for own use and* a right-of-use asset recognized by the AI as a lessee in accordance with the prevailing accounting standards issued by Hong Kong Institute of Certified Public Accountants where the asset leased is a tangible asset. *Other interest in land which are not occupied or used in the operation of the AI's business should also be reported here.*	100% unless otherwise specified by the MA
2.	**Exposures subject to the IRB approach which are not elsewhere specified** *This item includes exposures that are not classified under the IRB class of corporate, sovereign, bank, retail or equity exposures or the IRB subclass of cash items*.	100% unless otherwise specified by the MA

VIII. Purchased Receivables

(A) Derivation of Risk-weighted Amount for Default Risk

141. Purchased receivables should be classified as retail or corporate exposures, according to the nature of the receivables. For receivables belonging unambiguously to one IRB subclass, the risk-weight for default risk is based on the risk-weight function applicable to that particular IRB subclass, as long as the AI can meet the relevant requirements for the use of that particular risk-weight function. For example, if an AI cannot comply with the criteria for QRRE (see paragraph 26), the AI should use the risk-weight function for other retail exposures to individuals (see paragraph 28). Where an AI purchases a hybrid pool of receivables containing a mixture of exposures, the AI should, if it cannot separate the receivables into different IRB subclasses, apply the risk-weight function that will result in the highest risk-weighted amount of the exposures in the pool of purchased receivables.

(a) Purchased retail receivables

142. An AI may use the "top-down" approach to its purchased retail receivables as for other retail exposures (i.e. estimation of credit risk components on a pooled basis), provided that it meets the relevant requirements for retail exposures as set out in the Rules, and, in the case of calculation of default risk, it meets the requirements referred to in section 200(d) of the Rules. The AI may utilize external and internal reference data to estimate the PD and LGD in respect of its purchased retail receivables at the pool level (i.e. the AI is not required to estimate PDs and LGDs or EL for individual retail receivables within the pool). The estimates for PD and LGD (or EL) should be calculated for the purchased retail receivables on a stand-alone basis, that is, without regard to any recourse to, or guarantees from, the seller or other parties.

(b) Purchased corporate receivables

143. An AI which purchases corporate receivables should use the "bottom-up" approach to estimate the credit risk components for individual receivables for the calculation of the risk-weighted amount (i.e. consistent with the treatment of the AI's corporate exposures). In other words, the AI is not allowed to use the "top-down" approach to its purchased corporate receivables. The estimates for PD and LGD (or EL) should be calculated for each of the purchased corporate receivables on a stand-alone basis, that is, without regard to any recourse to, or guarantees from, the seller or other parties.

(B) Derivation of Risk-weighted Amount for Dilution Risk

144. Dilution refers to the possibility that the amount of a receivable is reduced through cash or non-cash credits to the receivable's obligor[44]. The following treatment of

[44] Examples include offsets or allowances arising from returns of goods sold, disputes regarding product quality, possible debts of the borrower to a receivable's obligor, and any payment or promotional discounts offered by the borrower (e.g. a credit for cash payments within 30 days).

dilution risk will be applied regardless of whether the purchased receivables are corporate or retail exposures.

145. Unless an AI can demonstrate to the satisfaction of the MA that the dilution risk it faces is immaterial, the AI should calculate the risk-weighted amount for dilution risk in respect of both purchased corporate and retail receivables as follows:

(i) at the level of either the pool as a whole (the "top-down" approach) or the individual receivables making up the pool (the "bottom-up" approach), the purchasing AI has to estimate the one-year EL for dilution risk (expressed as a percentage of the EAD of the purchased receivables); and

(ii) as with the treatment for default risk, the estimate of dilution risk should be computed on a stand-alone basis, that is, without regard to any recourse to, or guarantees from, the seller or other parties.

146. For the purpose of calculating the risk-weighted amount for dilution risk, the risk-weight function for corporate exposures set out in paragraph 62 (and where applicable, adjusted in accordance with paragraph 68 in respect of SME corporates; paragraph 69 in respect of exposures to financial institutions that are subject to the asset value correlation multiplier; or paragraph 75(i) in respect of HVCRE exposures) should be used as follows:

(i) PD should be set equal to the AI's estimate of EL for dilution risk;

(ii) LGD should be set at 100%; and

(iii) M is determined in accordance with:
- in the case of purchased corporate receivables, paragraph 105 if the AI uses the foundation IRB approach, or paragraphs 106 to 108 if the AI uses the advanced IRB approach;
- in the case of purchased retail receivables, paragraphs 106 to 108.

If an AI can demonstrate to the satisfaction of the MA that the AI's dilution risk in respect of its purchased receivables is monitored and managed by the AI with a view to the risk being resolved within one year after the purchase, the AI may set M at one year.

IX. Leasing Transactions

(A) Leases without Residual Value Risk

147. Exposures arising from leasing arrangements, other than those exposing the AI to residual value risk (see paragraph 148), should be treated as exposures secured by the leased assets. An AI may recognize the credit risk mitigating effect of the leased assets as recognized collateral if the relevant requirements set out in the Rules are met.

(B) Leases with Residual Value Risk

148. Exposures arising from leasing arrangements that expose the AI to residual value risk should be treated as follows:

(i) risk-weighted amount for default risk – an AI should calculate the risk-weighted amount for default risk in respect of the exposure by multiplying the discounted lease payment stream (i.e. EAD) by a risk-weight derived by using the risk-weight function applicable to the IRB subclass within which an exposure to the lessee falls (the PD and LGD as those which the AI assigns to the exposure); and

(ii) risk-weighted amount for residual value risk – an AI should calculate the risk-weighted amount for residual value risk in respect of the exposure by multiplying the residual value of the leased asset by a risk-weight of 100%.

X. Securities Financing Transactions

149. Subject to paragraphs 150, 151 and 152, the credit exposures to assets underlying securities financing transactions (SFTs) booked in the banking book or trading book of AIs should be risk-weighted using the "economic substance" approach as described below, and reported in Divisions B, C and F (if the securities are non-securitization exposures) or Form MA(BS)3(IIId) (if the securities are securitization exposures) as appropriate:

(a) *repos of securities* - where an AI has sold securities under repo agreements, the securities sold should continue to be treated as assets on the balance sheet of the AI, with ***regulatory capital*** provided for the credit exposure to the securities (see also sections 75(2), 76(2)(a) and 202(4) and (5) of the Rules);

(b) *reverse repos of securities* - where an AI has acquired securities under reverse repo agreements, no regulatory capital is required for the money paid by the AI;

(c) *securities lending* - the treatment is similar to that of repo transactions. The securities lent should continue to remain as assets on the balance sheet of the AI, with regulatory capital provided for the credit exposure to the securities (see also sections 75(2), 76(2)(a) and 202(4) and (5) of the Rules); and

(d) *securities borrowing* - where the collateral provided is not cash but securities, those securities should continue to remain as assets on the balance sheet of the AI, with regulatory capital provided for the credit exposure to those securities (see also sections 75(4)(b), 76(2)(b) and 202(4) and (5) of the Rules).

150. If the securities underlying the SFTs are ***securitization issues***, the AI should determine the risk-weight attributable to the securities in accordance with Part 7 of the Rules (see also section 75(5) of the Rules) and report the securities in Form MA(BS)3(IIId) accordingly.

151. Where an AI applies section 75 of the Rules to an SFT booked in its banking book, the AI must determine the risk-weight to be allocated to its exposure under the SFT in accordance with—

(a) the risk-weight function for corporate, sovereign and bank exposures;

(b) the risk-weight function for retail exposures;

(c) the market-based approach or the PD/LGD approach for equity exposures (except CIS exposures); or

(d) Part 6B of the Rules for CIS exposures not constituting a deductible holding,

as the case may be, according to the nature of the asset underlying the SFT, and, where applicable, the IRB class within which the issuer of the asset falls.

152. An exposure of an AI to the asset underlying a specified SFT as defined in section 76(2) of the Rules is an exposure subject to the requirements of Part 8 of the Rules instead.

153. Subject to paragraph 154, the default risk exposures in respect of SFTs (including centrally cleared trades that are treated as bilateral trades) booked in the banking book or trading book of AIs and the associated risk-weighted amount are determined in the following manner:

(a) AIs with the MA's approval to use the IMM(CCR) approach to calculate the default risk exposures in respect of SFTs (and also any LST arising from those transactions where covered by the IMM(CCR) approval) should report the exposures in Form IRB_OBSD_IMM. The instructions set out in paragraphs 178 to 181 on the use of the IMM(CCR) approach in respect of derivative contracts apply to SFTs (see also section 202(2) of the Rules);

(b) AIs that do not have an IMM(CCR) approval to calculate the default risk exposures in respect of SFTs should calculate the exposures in accordance with Division 2B of Part 6A and report the exposures in Form IRB_OBSD_SFT_N_IMM.

154. Subject to paragraph 155, where an AI applies Division 2 or 2B of Part 6A of the Rules, as the case requires, to an SFT, the AI must determine the risk-weight to be allocated to its exposure under the SFT in accordance with—

(a) the risk-weight function for corporate, sovereign and bank exposures; or

(b) the risk-weight function for retail exposures,

as the case may be, according to the IRB class within which an exposure to the counterparty to the SFT falls and, where applicable, in accordance with the treatment of credit risk mitigation set out in Division 10 of Part 6 of the Rules.

155. For LSTs arising from SFTs, an AI may determine the relevant risk-weight using the STC approach on a permanent basis.

156. The SFT risk-weighted amount of an AI referred to in paragraph 43(iv) is the sum of the default risk risk-weighted amounts for all counterparties to the SFTs of the AI where the default risk risk-weighted amount for each of the counterparties is calculated as the sum of the risk-weighted amounts of the default risk exposures across all the SFTs with the counterparty calculated in accordance with section 202 of the Rules.

XI. Credit-linked Notes

157. Where an AI issues a credit-linked note to cover the credit risk of an ***underlying exposure*** (i.e. the AI buys credit protection), the maximum amount of protection is the amount of the funds received from issuing that note. The protected amount should be treated as an exposure collateralized by cash deposits while the remaining unprotected amount, if any, should be treated as an exposure to the issuer of the underlying asset.

158. When an AI buys a credit-linked note (i.e. the AI sells credit protection), it acquires credit exposure on two fronts, to the reference obligation(s) of the note and also to the note issuer. A credit-linked note held by the AI, which is an on-balance sheet exposure, should be allocated a risk-weight, as determined by the applicable risk-weight function, which is the higher of the risk-weight attributable to the reference obligation(s) of the note as if the AI had a direct exposure to the reference obligation(s), or the risk-weight attributable to the note. However, an AI is not required to provide regulatory capital for its exposure to a credit-linked note held by it in excess of the institution's maximum liability under the note.

XII. Calculation of Risk-weighted Amount of Off-balance Sheet Exposures

(A) Classification of Off-balance Sheet Exposures

159. An AI is required to categorize its off-balance sheet exposures into one of the following two types:

(i) off-balance sheet exposures (other than default risk exposures in respect of derivative contracts and SFTs) in the banking book;

(ii) default risk exposures in respect of derivative contracts and SFTs in both the banking book and trading book.

(B) Derivation of Risk-weighted Amount of Off-balance Sheet Exposures

160. Except as specified in paragraphs 162 and 163, for the calculation of the risk-weighted amount of off-balance sheet exposures, an AI should:

(i) convert an off-balance sheet exposure into credit equivalent amount (i.e. EAD) by:

- applying an applicable ***credit conversion factor*** (***CCF***) to the principal amount of the off-balance sheet exposure (other than derivative contracts and SFTs) in the banking book; and
- using the IMM(CCR) approach, the SA-CCR approach or the methods referred to in section 10A(1)(b) of the Rules, as permitted under the Rules, in respect of the derivative contract and SFT, as the case may be (the resultant EAD estimate is termed "default risk exposure"); and

(ii) multiply the credit equivalent amount of the off-balance sheet exposure by an applicable risk-weight.

161. This Part focuses on instructions for the calculation of risk-weighted amount of the default risk exposure of derivative contracts using the IMM(CCR) approach or the SA-CCR approach but include SFTs where specified. For specific instructions for the calculation of risk-weighted amount of the default risk exposures in respect of SFTs, an AI should refer to paragraph 153(a) for those that are subject to the IMM(CCR) approach, and paragraph 153(b) for those that are not.

162. For LSTs arising from derivative contracts or SFTs, an AI may determine the relevant risk-weight using the STC approach on a permanent basis.

163. If an AI issues a credit-linked note to cover a default risk exposure, the amount of the proceeds received from the issuance of the credit-linked note should not be included in the calculation of the amount of the default risk exposure under Division 1A, 2 or 2B of Part 6A of the Rules.

164. Under the SA-CCR approach and the IMM(CCR) approach, the default risk exposures of credit derivative contracts falling within the following categories can be regarded as zero:

(i) Credit default swaps that have been reported as "direct credit substitutes" in item 1 of Division D (i.e. the AI has already held capital against the credit risk of the reference obligations underlying the swaps);

(ii) Recognized credit derivative contracts held by the AI as protection buyer in respect of which the CRM effects have already been taken into account in accordance with Division 10 of Part 6 of the Rules for the purposes of risk-weighted amount calculation.

Off-balance Sheet Exposures (Other than Default Risk Exposures in respect of Derivative Contracts and SFTs)

(a) CCFs and EAD

165. An AI should classify each of its off-balance sheet exposures (other than default risk exposures) in the banking book as one of the following items:

	Off-balance sheet exposures (other than default risk exposures) in the banking book	**CCF**		
		Corporate/Sovereign/Bank exposures		**Retail exposures**
		FIRB approach	**AIRB approach**	**Retail IRB approach**
1.	***Direct credit substitutes***	100%	100%	Own estimate
2.	***Transaction-related contingencies***	50%	Own estimate	Own estimate
3.	***Trade-related contingencies***	20%	Own estimate	Own estimate
4.	***Asset sales with recourse***	100%	100%	Own estimate
5.	***Forward asset purchases***	100%	100%	Own estimate
6.	***Partly paid-up securities*** (being an off-balance sheet exposure to the credit risk of the securities purchased from an issuer where only a part of the issue price or nominal face value of the securities has been paid by the institution and the institution will be required to pay the unpaid amount in the future) *In respect of partly paid-up equity shares, the unpaid portion of which an AI may be called upon by the issuer to pay should be subject to a CCF of 100% and reported under equity exposures, together with the paid-up portion.*	100%	100%	Own estimate
7.	***Forward forward deposits placed***[45]	100%	100%	Own estimate
8.	***Note issuance and revolving***	75%	Own	Own

[45] Where an AI has contracted to receive a deposit (i.e. forward forward deposits taken), failure to deliver by the counterparty may result in an unanticipated change in the AI's interest rate exposures and involve a replacement cost. Such exposure should thus be accorded the same treatment as interest rate contracts.

	Off-balance sheet exposures (other than default risk exposures) in the banking book	CCF		
		Corporate/Sovereign/Bank exposures		Retail exposures
		FIRB approach	AIRB approach	Retail IRB approach
	underwriting facilities		estimate	estimate
9.	***Commitments that are unconditionally cancellable without prior notice*** (i.e. off-balance sheet exposures that do not fall within any of items 1 to 8 and arise from commitments which may be cancelled at any time unconditionally by an AI or which provide for automatic cancellation due to a deterioration in the creditworthiness of the person to whom the commitment has been made[46]);	0%	Own estimate	Own estimate
10.	***Other commitments***			
	(a) Subject to paragraph (b), commitments which do not fall within item 9; and	75%	Own estimate	Own estimate
	(b) the drawdown of which will give rise to an off-balance sheet exposure falling within any of items 1 to 8 or item 11.	The lower of 75% or the CCF applicable to the off-balance sheet exposure arising from the drawdown of the commitment concerned	Own estimate	Own estimate
11.	***Others*** *This item includes any off-balance sheet exposure not classified as the above items.*	A CCF specified by the MA or 100%		

[46] Included in this item are those facilities that are unconditionally cancellable without prior notice by the AI other than for "force majeure" reasons, or that effectively provide for automatic cancellation due to deterioration in a borrower's creditworthiness. This also includes any revolving or undated/open-ended commitments, e.g. overdrafts or unused credit card lines, provided that these commitments can be unconditionally cancelled at any time and subject to credit review at least annually.

166. An AI using the advanced IRB approach for corporate, sovereign and bank exposures or the retail IRB approach for retail exposures is allowed to provide its own estimates of CCFs for off-balance sheet exposures as listed in paragraph 165.

167. For off-balance sheet exposures arising from unsegregated collateral posted to the counterparty by an AI, the AI using the foundation IRB approach should refer to section 163(2A) and (2B) of the Rules to estimate the EAD of the exposures, while the AI using the advanced IRB approach should refer to section 164(2)(b), (4) and (4A) of the Rules to estimate the EAD of the exposures.

168. For corporate, sovereign and bank exposures, the principal amount to which the CCF is applied is the lower of (i) the amount of the unused committed credit line or (ii) the amount that reflects any possible constraining availability of the facility (e.g. the existence of a ceiling on the potential lending amount subject to the borrower's reported cash flow). If the facility is constrained in this manner, the AI should have sufficient monitoring and management procedures to support this treatment.

169. For retail exposures with an uncertain future drawdown (e.g. credit cards), an AI should take into account the drawdown and repayment history and expectation of additional drawings by the obligors prior to default in its overall calibration of loss estimates. In particular, where an AI does not reflect CCFs for undrawn lines in its EAD estimates, it should reflect in its LGD estimates the likelihood of additional drawings prior to default. Conversely, if an AI does not incorporate the possibility of additional drawings in its LGD estimates, it should do so in its EAD estimates.

170. When only the drawn balances of retail facilities have been securitized, an AI should ensure that it continues to hold required capital against its share (i.e. seller's interest) of undrawn balances related to the securitization exposures under the IRB approach. For determining the EAD associated with the seller's interest in the undrawn lines, the undrawn balances of securitization exposures will be allocated between the seller's and ***investors' interests*** on a pro rata basis, based on the proportion of the seller's and investors' shares of the securitized drawn balances.

171. For item 11 under paragraph 165, an AI should apply a CCF of 100%, unless a CCF applicable to the exposure is specified in Part 2 of Schedule 1 to the Rules.

(b) Calculation of risk-weighted amount

172. In calculating the risk-weighted amount of off-balance sheet exposures (other than default risk exposures) in the banking book, the applicable risk-weight to an exposure should be derived from the risk-weight function for the IRB class/subclass within which the exposure falls.

Default Risk Exposures in respect of Derivative Contracts (including centrally cleared trades that are treated as bilateral trades) using SA-CCR approach

(a) Calculation of EAD

173. An AI using the foundation IRB approach or the advanced IRB approach must determine the outstanding default risk exposures in respect of its derivative contracts booked in the banking book or trading book of the AI based on the default risk exposures calculated for the contracts by using the SA-CCR approach in accordance with Division 1A of Part 6A of the Rules.

174. The default risk exposure in respect of a derivative contract should be adjusted for the risk mitigating effects of any recognized netting (see paragraphs 195 to 196).

175. Where an AI enters into no less than one derivative contract with a counterparty, the applicable default risk exposure in respect of the transactions and contracts with that counterparty (the ***outstanding default risk exposure***) is the greater of:

(i) zero; or

(ii) the difference between –
(A) the sum of default risk exposures across all netting sets with the counterparty; and
(B) the ***CVA loss*** in respect of that counterparty.

(b) Calculation of risk-weighted amount

176. The SA-CCR risk-weighted amount in respect of derivative contracts of an AI is the sum of the default risk risk-weighted amounts for all the counterparties to the contracts where the default risk risk-weighted amount for each of the counterparties is calculated as the product of-

(i) the outstanding default risk exposure to the counterparty as calculated under paragraph 175; and

(ii) the applicable risk-weight to the exposure derived from the risk-weight function for the IRB class/subclass within which the counterparty of the exposure falls.

177. For the calculation of the risk-weighted amount for LSTs arising from derivative contracts, an AI may determine the relevant risk-weight using the STC approach on a permanent basis.

Default risk exposures in respect of derivative contracts and SFTs (including centrally cleared trades that are treated as bilateral trades) under the IMM(CCR) approach

(a) Calculation of EAD and risk-weighted amount

178. An AI may use the IMM(CCR) approach to calculate the default risk exposures in respect of bilateral trades (including centrally cleared trades that are treated as

bilateral trades) arising from derivative contracts and SFTs (including any LST arising from those transactions or contracts) if it has an IMM(CCR) approval for those transactions, contracts or LSTs, as the case may be.

179. An AI must calculate -

(i) the portfolio-level risk-weighted amount of the relevant exposures based on current market data in accordance with sections 226D(1)(a) and (2)(a) of the Rules; and

(ii) the portfolio-level risk-weighted amount of the relevant exposures based on stress calibration in accordance with sections 226D(1)(b), (2)(b) and (3) of the Rules.

180. For the calculation of the risk-weighted amounts referred to in paragraph 179(i) and (ii) in respect of LSTs arising from derivative contracts and SFTs, an AI may determine the relevant risk-weight using the STC approach on a permanent basis.

181. The higher of the portfolio-level risk-weighted amount calculated under paragraph 179(i) and (ii) is the ***IMM(CCR) risk-weighted amount*** in respect of the derivative contracts and SFTs of the AI that are covered by its IMM(CCR) approval. Accordingly, the default risk exposures of the derivative contracts and SFTs to be reported in Form IRB_OBSD_IMM are those calculated in accordance with sections 226E to 226M of the Rules that give rise to the IMM(CCR) risk-weighted amount (i.e. the higher of the number calculated under paragraph 179(i) and (ii)).

XIII. Credit Risk Mitigation

(A) General

182. Subject to paragraphs 184 and 185, under the IRB approach, an AI may take into account the effect of recognized credit risk mitigation in its calculation of risk-weighted amount of exposures, including:

(i) recognized collateral;

(ii) recognized netting; and

(iii) recognized guarantees and recognized credit derivative contracts.

183. The risk-weighted amount of an AI's exposure in respect of which recognized credit risk mitigation has been taken into account shall not be higher than that of an identical exposure in respect of which recognized credit risk mitigation has not been so taken into account.

184. An AI must not take into account the effect of recognized credit risk mitigation in accordance with Division 10 of Part 6 of the Rules in calculating the risk-weighted amount of its exposures to the extent that the credit risk mitigating effect concerned

has already been taken into account in the AI's calculation of the risk-weighted amount for its exposures in accordance with the Rules other than that Division.

185. Where an AI has bought credit protection for an exposure and the credit protection is in the form of a single-name credit default swap that falls within section 226J(1) of the Rules, the AI must not take into account the credit risk mitigating effect of that swap when calculating the risk-weighted amount of the exposure.

(B) Capital Treatment of Recognized Collateral

186. Under the IRB approach, collateral is recognized through the determination of LGD (see paragraphs 86 to 99 for corporate, sovereign and bank exposures and paragraphs 115 and 116 for retail exposures).

187. An AI may take into account the credit risk mitigating effect of recognized collateral in the calculation of the risk-weighted amounts of a default risk exposure only if either of the following is complied with in respect of the exposure:

(i) the exposure is in respect of an SFT that is not nettable calculated in accordance with section 226MJ of the Rules; or

(ii) the exposure is in respect of one or more than one derivative contract entered into by the AI with a counterparty and the conditions specified in section 204(3) of the Rules are met.

188. If the same recognized collateral is available to cover both default risk exposures and non-default risk exposures, an AI may take into account the credit risk mitigating effect of the recognized collateral for the purpose of calculating the risk-weighted amount of the non-default risk exposures only to the extent of the current market value, or the part of such value, of the collateral that is not included in the calculation of the default risk exposures under Division 1A or 2 of Part 6A of the Rules, and in accordance with other applicable provisions in Division 10 of Part 6 of the Rules relating to recognized collateral.

(C) Capital Treatment of Recognized Netting

(a) General

189. Subject to paragraph 203, where an AI is entitled pursuant to a valid bilateral netting agreement or valid cross-product netting agreement to net amounts owed by the AI to a counterparty against amounts owed by the counterparty to the AI, the AI may take into account the credit risk mitigating effect of the recognized netting in calculating the EAD of its exposure to the counterparty.

(b) EAD measurement for on-balance sheet netting

190. In respect of on-balance sheet exposures which fall within the IRB class of corporate, sovereign, bank, retail or other exposures, an AI may net the debit balances from the credit balances in the accounts of the same counterparty in accordance with the formula set out in paragraph 191 and report the net credit exposure amount as on-balance sheet exposures before recognized guarantees/credit derivative contracts.

191. Below is the formula for calculating the net credit exposure with a counterparty for on-balance sheet exposures, adjusted for the credit risk mitigating effect of a valid bilateral netting agreement:

$$\text{Net credit exposure} = \max [0, \text{exposures} - \text{liabilities} \times (1 - H_{fx})]$$

192. H_{fx} is the haircut to be applied in the case of a currency mismatch between exposures and liabilities, which is 8% assuming a ***minimum holding period*** of 10 business days, daily remargining and daily marking-to-market. It should be adjusted in accordance with section 92 of the Rules if a different minimum holding period is adopted, or the exposure is not remargined or revalued daily as assumed.

193. Treatments for maturity mismatch in respect of on-balance sheet netting are set out in paragraphs 227 to 229.

194. In respect of sovereign exposures, the market makers of Exchange Fund Bills/Notes which have short positions in these instruments may report their net holdings, provided that the short positions are covered by the Sale and Repurchase Agreements with the HKMA. The following steps should be taken in determining the amount to be reported:

(i) the long and short positions of instruments with a residual maturity of under one year may be offset with each other;

(ii) the long and short positions of instruments with a residual maturity of one year and over may be offset with each other;

(iii) if the net positions of both items (i) and (ii) above are long, the positions should be reported; and

(iv) if the net position in item (i) is long and the net position in item (ii) is short, or the other way round, the positions can be netted with each other on a dollar for dollar basis. The resultant net long position, if any, should be reported.

(c) EAD measurement for netting of derivative contracts using the SA-CCR approach

195. An AI is allowed to net exposures arising from derivative contracts with the same counterparty, provided that such exposures are subject to a valid bilateral netting agreement. The netting agreement may cover only a single type or more than one type of contracts. The recognition of the credit risk mitigating effect of a ***valid cross-product netting agreement*** is only available in respect of an AI's transactions with a counterparty that are covered by an IMM(CCR) approval.

196. An AI is required to calculate an aggregate default risk exposure for derivative contracts subject to a valid bilateral netting arrangement in accordance with Division 1A of Part 6A of the Rules, as the case requires.

(d) EAD measurement for netting of repo-style transactions not under the IMM(CCR) approach

197. Where repo-style transactions are subject to a valid bilateral netting agreement, an AI may choose not to take into account the netting effects in calculating the risk-weighted amount for such transactions. In taking into account the credit risk mitigating effects of recognized netting for repo-style transactions, the AI should calculate the default risk exposure (E^*) using the formula below, and equate E^* as the default risk exposure before recognized guarantees/credit derivative contracts.

$$E^* = \text{Max}\ \{0, [(\sum (E) - \sum (C)) + \sum (E_s \times H_s) + \sum (E_{fx} \times H_{fx})]\}$$

where:

E^*	=	Default risk exposure
E	=	Current market value of all money and securities provided by the AI under the transactions
C	=	Current market value of all money and securities received by the AI under the transactions
E_s	=	Absolute value of the net position in the same securities
H_s	=	Standard supervisory haircut applicable to E_s subject to the adjustment set out in section 3 of Schedule 7 to the Rules
E_{fx}	=	Absolute value of the net position in a currency different from the settlement currency
H_{fx}	=	Standard supervisory haircut applicable in consequence of a currency mismatch, if any, between the currency in which a net position is denominated and the settlement currency subject to the adjustment set out in section 3 of Schedule 7 to the Rules

198. The AI should compare the aggregate market value of all money and securities provided with the aggregate market value of all money and securities received, taking into account haircuts in the formula specified in paragraph 197. Where the value calculated in accordance with the formula is greater than zero, the AI has a default risk exposure to the counterparty for which capital requirement should be provided.

199. For appropriate values of haircuts to be applied, the AI should refer to Schedule 7 to the Rules, which set out the standard supervisory haircuts and the circumstances requiring haircut adjustments under the comprehensive approach to treatment of collateral under the STC approach. As under the STC approach, a haircut of 0% may be applied for repo-style transactions where the criteria specified under section 82(2) of the Rules are satisfied.

200. In general, repo-style transactions in the banking book and the trading book should be netted separately. Netting across positions in different books with the same counterparty will only be allowed if:

(i) all transactions are marked-to-market daily; and

(ii) the collateral used in the transactions is recognized collateral for transactions booked in the banking book.

201. Where the AI has been approved for using internal models to measure market risk for capital adequacy purposes, it may, subject to the prior consent of the MA, use a VaR approach as an alternative to the use of standard supervisory haircuts, to reflect the price volatility of the exposure and collateral for repo-style transactions covered by valid bilateral netting agreements on a counterparty-by-counterparty basis. The criteria for using the VaR approach and the related capital treatments are set out in section 226ML of the Rules.

202. For corporate, sovereign and bank exposures under the foundation IRB approach, the impact of collateral on these repo-style transactions may not be reflected through an adjustment to LGD. Under the advanced IRB approach, own LGD estimates would be permitted for the default risk exposure (E^*) to the counterparty. The risk-weight of the default risk exposure will be determined using the risk-weight function applicable for that particular IRB class/subclass. For LSTs arising from repo-style transactions, an AI may determine the relevant risk-weight using the STC approach on a permanent basis.

(e) EAD measurement for netting of derivative contacts and SFTs under the IMM(CCR) approach

203. An AI that uses the IMM(CCR) approach to calculate the EAD of a netting set that contains derivative contacts or SFTs should take into account the effect of any recognized netting in respect of the transactions or contracts concerned in the manner set out in Division 2 of Part 6A of the Rules instead of as stated above except for transactions for which the AI is permitted under section 10B(5), or has chosen under section 10B(7), of the Rules to use the methods set out in Division 1A or 2B of Part 6A of the Rules, as the case requires.

(D) Capital Treatment of Recognized Guarantees and Recognized Credit Derivative Contracts

204. Under the IRB approach, an AI may use the ***substitution framework*** to take into account the credit risk mitigating effects of recognized guarantees and recognized credit derivative contracts in calculating the risk-weighted amount of an exposure. Alternatively, an AI may use the double default framework to take into account the credit risk mitigating effect of a recognized guarantee or recognized credit derivative contract for each exposure which meets the requirements for using the double default framework.

205. If a recognized guarantee is provided to an AI or a recognized credit derivative contract is entered into by the AI, and the AI does not use the IRB approach to calculate its credit risk for exposures to the guarantor or counterparty, the AI should not take into account the credit risk mitigating effect of the guarantee or contract, in calculating, under the IRB approach, the risk-weighted amount of the exposure which is covered by the guarantee or contract.

206. Consistent with the STC approach, an AI may choose not to take into account the credit risk mitigating effects of guarantees and credit derivative contracts under the substitution framework or the double default framework, if doing so would result in a higher risk-weighted amount.

207. An AI should have in place clearly documented criteria, methods and processes for taking into account the credit risk mitigating effect of recognized guarantees and recognized credit derivative contracts, and the effects should be taken into account consistently both for a given type of recognized guarantee or recognized credit derivative contract and over time.

208. In respect of credit derivative contracts, only credit default swaps and total return swaps that provide credit protection will be recognized. However, where an AI buys the credit protection through a total return swap and records the net payments received on the swap as net income, but does not record offsetting deterioration in the value of the asset that is protected (either through reductions in fair value or by an addition to reserves or provisions), the credit protection will not be recognized. Credit-linked notes issued by the AI which fulfil the operational requirements for credit derivative contracts will be treated as cash collateralized transactions (see paragraph 157).

Corporate, Sovereign and Bank Exposures

(a) Substitution framework

209. Under the substitution framework, there are two approaches for taking into account the credit risk mitigating effect of recognized guarantees and recognized credit derivative contracts: (i) the foundation IRB approach and (ii) the advanced IRB approach. Under the substitution framework, credit risk mitigation in the form of guarantees and credit derivative contracts should not reflect the effect of ***double default***. As such, to the extent that the credit risk mitigation is recognized by an AI, the adjusted risk-weight will not be less than that of a comparable direct exposure to the credit protection provider except where a case falls within paragraph 211(ii) or 215.

Foundation IRB Approach

210. For an AI using the foundation IRB approach, the treatment of recognized guarantees and recognized credit derivative contracts closely follows that under the comprehensive approach to the treatment of the same under the STC approach.

211. The credit risk mitigating effect of recognized guarantees and credit derivative contracts is taken into account as follows:

(i) for the covered portion of the exposure, subject to subparagraph (ii), a risk-weight is derived by taking the risk-weight function applicable to the IRB class/subclass to which the credit protection provider belongs, and the PD associated with the internal obligor grade of the credit protection provider or the PD of an obligor grade falling between the internal obligor grades of the underlying obligor and the credit protection provider if the AI considers that a full substitution treatment may not be warranted. Where a portion of the exposure is covered by a recognized guarantee (original guarantee) and is the subject of a counter-guarantee given by a sovereign, the AI may, in respect of the credit protection covered portion, treat the counter-guarantee as if it were the original guarantee if the criteria set out in section 216(3A) or 217(4) of the Rules, as the case may be, are met;

(ii) where an exposure of the AI is covered by a recognized credit derivative contract cleared by a *qualifying CCP*, the AI may allocate to the covered portion of the exposure (a) a risk-weight of 2% if the requirements of section 216(3B)(a) of the Rules are met; or (b) a risk-weight of 4% if the requirements of section 216(3B)(b) or (c) of the Rules are met;

(iii) the AI may replace the LGD of the underlying exposure with the LGD applicable to the guarantee/credit derivative contract taking into account the seniority and any recognized collateral of the credit protection;

(iv) the uncovered portion of the exposure is assigned the risk-weight associated with the underlying obligor; and

(v) an AI should allocate a risk-weight of 1250% to the ***first loss portion*** in determining the risk-weighted amount where the credit protection for an AI's exposure consists of a recognized credit derivative contract providing that, on the happening of a credit event, the credit protection provider is not obliged to make a payment for any loss until the loss exceeds a specified amount (i.e. the first loss portion) and the credit protection provider is not obliged to make a payment for any loss except to the extent that the loss exceeds the first loss portion.

212. Where partial coverage exists, or where there is a currency mismatch or maturity mismatch between the underlying obligation and the credit protection, an AI should split the exposure into a covered and an uncovered portion as follows:

(i) <u>proportional cover</u> – Where the amount guaranteed, or against which credit protection is held, is less than the amount of the exposure, and the secured and unsecured portions are of equal seniority (i.e. the AI and the credit protection provider share losses on a pro-rata basis), capital relief will be afforded on a proportional basis. That means the protected portion of the exposure will receive the treatment applicable to recognized guarantees/credit derivative contracts, with the remainder treated as unsecured.

(ii) tranched cover – If the institution has obtained ***tranched credit protection*** for its exposure, it must decompose the exposure into a protected sub-tranche and an unprotected sub-tranche, and determine the risk-weighted amount of the exposure in accordance with Part 7 of the Rules.

(iii) currency mismatch / maturity mismatch – The treatment of currency mismatch is set out in paragraphs 225 and 226 and that of maturity mismatch is set out in paragraphs 227 to 229.

Advanced IRB Approach

213. Subject to paragraph 215, an AI using the advanced IRB approach may reflect the credit risk mitigating effect of recognized guarantees and recognized credit derivative contracts through adjusting either PD or LGD estimates. Whether adjustments are done through PD or LGD, they should be done in a consistent manner for a given type of guarantees or credit derivative contracts. In doing so, the AI should not include the effect of double default in such adjustments. Thus, the adjusted risk-weight should not be less than that of a comparable direct exposure to the credit protection provider.

214. An AI relying on its own estimates of LGD has the option to adopt the treatment for AIs using the foundation IRB approach (see paragraphs 210 to 212), or to make an adjustment to its LGD estimate of the exposure to reflect the presence of the recognized guarantee/credit derivative contract under the advanced IRB approach.

215. Where an exposure of the AI is covered by a recognized credit derivative contract cleared by a qualifying CCP, the AI may allocate to the covered portion of the exposure (a) a risk-weight of 2% if the requirements of section 217(5)(a) of the Rules are met; or (b) a risk-weight of 4% if the requirements of section 217(5)(b) or (c) of the Rules are met.

(b) Double default framework

216. Corporate exposures (excluding specialized lending under supervisory slotting criteria approach) or public sector entity exposures (excluding exposures to sovereign foreign public sector entities) that are hedged by recognized guarantees/credit derivative contracts and satisfy the relevant requirements as set out in the Rules are eligible for the double default framework for recognition of the credit risk mitigating effect.

217. The risk-weighted amount of hedged exposures should be calculated according to the risk-weight function set out in paragraph 64 (and, where applicable, adjusted by paragraph 68(ii) in respect of SME corporates; paragraph 69 in respect of exposures to financial institutions that are subject to the asset value correlation multiplier; or paragraph 75(i) in respect of HVCRE exposures). The risk-weighted amount of the unhedged exposure should be calculated in the same way as for all other corporate exposures to the same obligor of the underlying exposure according to the risk-weight function set out in paragraph 62 (and, where applicable, adjusted by paragraph 68(i) in respect of SME corporates; paragraph 69 in respect of exposures to financial institutions that are subject to the asset value correlation multiplier; or paragraph 75(i) in respect of HVCRE exposures).

Retail Exposures

218. An AI using the retail IRB approach may use the substitution framework as set out in paragraphs 213 to 215 to take account of the credit risk mitigating effects of recognized guarantees and recognized credit derivative contracts in calculating the risk-weighted amount of a retail exposure.

Equity Exposures

219. An AI using the PD/LGD approach may use the substitution approach set out in paragraphs 210 to 212 to take account of the credit risk mitigating effects of recognized guarantees and recognized credit derivative contracts in calculating the risk-weighted amount of an equity exposure.

Purchased Receivables

220. For both purchased corporate and retail receivables, recognized guarantees and recognized credit derivative contracts under the substitution framework will be recognized generally using the substitution framework as set out in paragraphs 210 to 215, without regard to whether the guarantee or contract, as the case may be, covers default risk or dilution risk, or both.

221. If the recognized guarantee/credit derivative contract covers both the purchased receivable's default risk and dilution risk, an AI should substitute the risk-weight of the exposure to the credit protection provider for the sum of the purchased receivable's risk-weights for default risk and dilution risk which would otherwise be allocated to the exposure in respect of the purchased receivable in accordance with paragraphs 141 to 146.

222. If the recognized guarantee/credit derivative contract covers only default risk or dilution risk, but not both, an AI should substitute the risk-weight of the exposure to the credit protection provider for the risk-weight which would otherwise be allocated in respect of the default risk or dilution risk, as the case may be, covered by the guarantee/contract for the purpose of calculating the risk-weighted amount of the AI's exposure for default risk or dilution risk, as the case may be, in respect of the purchased receivable. The risk-weighted amount of the purchased receivable for the other risk component (being default risk or dilution risk not covered by the guarantee/contract, as the case may be), will then be added.

223. If the recognized guarantee/credit derivative contract covers only a portion of the default risk and/or dilution risk, an AI should divide the exposure into a covered portion and an uncovered portion for the default risk and dilution risk in accordance with paragraph 212 for proportional or tranched coverage. An AI should calculate the risk-weighted amount of the uncovered portion of the exposure in respect of default risk and dilution risk in accordance with paragraphs 141 to 146 and the risk-weighted amount of the covered portion of the exposure in respect of default risk and dilution

risk in accordance with paragraph 221.

224. If the recognized guarantee/credit derivative contract covers only the dilution risk in respect of a purchased corporate receivable and the exposure meets the requirements set out in the Rules, an AI may use the double default framework to calculate the risk-weighted amount for dilution risk of the hedged exposure. In this case, paragraph 64 (and, where applicable, adjusted by paragraph 68(ii) in respect of SME corporates; paragraph 69 in respect of exposures to financial institutions that are subject to the asset value correlation multiplier; or paragraph 75(i) in respect of HVCRE exposures) apply with PD_o equal to the estimated EL for dilution risk, LGD_g equal to 100%, and M set according to paragraph 109.

(E) Currency Mismatches

225. Where a foreign currency mismatch occurs, i.e. when the credit protection is denominated in a currency different from that of the underlying obligation, the portion covered by the credit protection should be reduced by a standard haircut of 8%.

$$G_a = G \times (1 - H_{fx})$$

where:

G_a= Credit protection covered portion adjusted for currency mismatch

G = Maximum amount payable to the AI under the credit protection

H_{fx}= Haircut applicable for currency mismatch between the credit protection and underlying obligation pursuant to the standard supervisory haircuts subject to adjustment as set out in section 92 of the Rules

226. The 8% haircut is based on a 10-business day holding period, daily remargining and daily marking-to-market. This haircut has to be adjusted in accordance with section 92 of the Rules when the minimum holding period or the mark-to-market frequency of the transactions is different from that of the standard supervisory haircut.

(F) Maturity Mismatches

227. The maturity of both the underlying exposure and the credit protection (i.e. on-balance sheet netting, recognized collateral, guarantees and credit derivative contracts) should be defined conservatively. The effective maturity of the underlying exposure should be regarded as the longest possible remaining time before the obligor is scheduled to fulfil its obligation, taking into account any applicable grace period. For the credit protection, embedded options which may reduce the term of the credit protection should be taken into account such that the shortest possible effective maturity should be considered. Where a call is at the discretion of the protection provider, the maturity will always be the first call date. If the call is at the discretion of the AI as the protection buyer but the terms of the arrangement of obligation of the hedge contain a positive incentive for the buyer to call the transaction before

contractual maturity, the remaining time to the first call date will be deemed to be the effective maturity.

228. A maturity mismatch occurs where the residual maturity of the credit protection is shorter than that of the underlying exposure. The credit protection will be recognized when the hedge has an original maturity of longer than or equal to one year. As a result, the maturity of hedges for exposures with original maturities of less than one year must be matched to be recognized. In all cases, hedges with maturity mismatches will no longer be recognized when the hedges have a residual maturity of three months or less.

229. Where a recognized maturity mismatch exists, the value of the credit protection should be adjusted as follows:

$$P_a = P \times (t - 0.25) / (T - 0.25)$$

where:

P_a = Value of credit protection adjusted for maturity mismatch

P = Value of credit protection adjusted by standard supervisory haircuts (subject to adjustment as set out in section 92 of the Rules) for volatility of value of collateral and currency mismatch (if applicable)

t = min (T, residual maturity of credit protection) expressed in years

T = min (5, residual maturity of the underlying exposure) expressed in years

XIV. Application of Scaling Factor

230. In determining the total risk-weighted amount under the IRB approach, the MA will apply a scaling factor (which could be either greater than or less than one) to the risk-weighted amount calculated for all IRB classes under the IRB approach (which does not apply to the CVA risk-weighted amount reported in Form MA(BS)3(IIIf)) (see also paragraph 43(v)). The use of this scaling factor is to broadly maintain the aggregate level of minimum capital requirements derived from the revised capital adequacy framework.

231. The current best estimate of the scaling factor is 1.06. In applying this scaling factor, an AI should multiply the risk-weighted amount calculated under the IRB approach (which does not apply to the CVA risk-weighted amount reported in Form MA(BS)3(IIIf)) by 1.06 for the computation of the capital adequacy ratio.

Section C: Treatment of Expected Losses and Eligible Provisions under IRB Approach

I. Determination of Total EL Amount

232. An AI should sum the EL amount (i.e. EL x EAD) attributed to its corporate, sovereign, bank and retail exposures (excluding hedged exposures under the double default framework[47]) that are subject to the IRB approach to obtain a ***total EL amount***.

(A) EL for Exposures other than SL under Supervisory Slotting Criteria Approach

233. An AI should calculate the EL as PD x LGD for corporate, sovereign, bank and retail exposures which are not in default and not treated as hedged exposures under the double default framework. For corporate, sovereign, bank and retail exposures that are in default, an AI should use its best estimate of EL.

(B) EL for SL under Supervisory Slotting Criteria Approach

234. For SL under supervisory slotting criteria approach, EL amount is determined by multiplying by 8% the risk-weighted amount produced from the appropriate risk-weights as specified below:

Remaining maturity	Strong	Good	Satisfactory	Weak	Default
SL (other than HVCRE exposures)					
Equal or more than 2.5 years	5%	10%	35%	100%	625%
Less than 2.5 years	0%	5%	35%	100%	625%
HVCRE exposures					
All maturities	5%	5%	35%	100%	625%

235. Where an AI assigns preferential risk-weights to its SL under supervisory slotting criteria approach (other than HVCRE exposures and specified ADC exposures) in accordance with paragraph 78(a), then, for the purpose of calculating the risk-weighted amount of these SL, the AI may assign preferential risk-weights of 0% and 5% to the SL which falls within the "strong" and "good" grades respectively in calculating the EL amount.

[47] In general, most banks do not make provisions for the hedged portion of an exposure. Furthermore, the EL is dependent on the joint probability of default of the underlying obligor and the credit protection provider and would therefore be minimal. Under these circumstances, the EL for the hedged portion of an exposure is assumed to be zero.

II. Determination of Total Eligible Provisions

236. Total eligible provisions is defined as the sum of eligible provisions that are attributed to corporate, sovereign, bank and retail exposures (excluding hedged exposures under the double default framework) that are subject to the IRB approach, where eligible provisions means the sum of the AI's specific provisions, partial write-offs, regulatory reserve for general banking risks and ***collective provisions*** attributed to non-securitization exposures that are subject to the IRB approach and any discounts referred to in paragraphs 103 and 118 on the aforesaid IRB exposures that are in default, exclusive of any CVA and CVA loss.

(A) A Portion of Exposures subject to STC Approach to Credit Risk

237. An AI using only the IRB approach, or both the IRB approach and the STC approach, to calculate its credit risk for non-securitization exposures, either on a transitional basis, or on a permanent basis if the exposures subject to the STC approach are exempted from the IRB approach, should determine the portion of regulatory reserve for general banking risks and collective provisions that is attributed to exposures under the STC approach, IRB approach, ***securitization internal ratings-based approach*** (***SEC-IRBA***), ***securitization external ratings-based approach*** (***SEC-ERBA***), ***securitization standardized approach*** (***SEC-SA***) and ***securitization fall-back approach*** (***SEC-FBA***). The treatment of such reserves and provisions attributed to exposures under these approaches is set out in the completion instructions of Form MA(BS)3(II) (see paragraphs 108 and 109), with elaborations on apportionment method in paragraphs 238 and 239.

238. An AI should attribute its total regulatory reserve for general banking risks and collective provisions on a pro-rata basis according to the proportion of the risk-weighted amount calculated by using the STC approach, IRB approach, SEC-IRBA, SEC-ERBA, SEC-SA or SEC-FBA, as the case requires (which does not include the risk-weighted amount for CVA and exposures to CCPs calculated under Part 6A of the Rules). However, with the prior consent of the MA, an AI may use its own method to apportion its total regulatory reserve for general banking risks and collective provisions among the various credit risk calculation approaches. For example, when one approach to determining the risk-weighted amount (e.g. STC approach or IRB approach) is used exclusively within an entity of the AI's consolidation group, the regulatory reserve for general banking risks and collective provisions booked within the entity using the STC approach may be attributed to exposures under the STC approach. Similarly, the regulatory reserve for general banking risks and collective provisions booked within an entity using the IRB approach may be attributed to the total eligible provisions as defined in paragraph 236.

239. The MA may, on a case-by-case basis, consider whether there are particular circumstances that justify an AI using its internal allocation methodology for allocating the reserves for general banking risks and collective provisions for recognition in capital under the STC approach, IRB approach, SEC-IRBA, SEC-ERBA, SEC-SA and SEC-FBA. An AI should obtain the MA's prior consent before such a method can be used.

III. Treatment of Total EL Amount and Total Eligible Provisions

240. An AI using the IRB approach should compare the amount of total eligible provisions (see paragraph 236) with the total EL amount (see paragraphs 232 to 235).

241. Where the total EL amount exceeds total eligible provisions, the AI should deduct the difference from its CET1 capital, in accordance with section 43(1)(i) of the Rules.

242. Where the total EL amount is less than total eligible provisions, the AI may include the difference in its Tier 2 capital, up to a maximum of 0.6% of the risk-weighted amount (excluding securitization exposures) calculated under the IRB approach (which does not include the risk-weighted amount for CVA and exposures to CCPs calculated under Part 6A of the Rules).

Section D: Specific Instructions

FORM: IRB_TOTCRWA

243. This form gives a summary of an AI's risk-weighted amount by IRB class/subclass calculated under the IRB approach and the risk-weighted amount for CVA calculated under Division 3 of Part 6A of the Rules (but excluding securitization exposures and exposures to CCPs calculated under Part 7 and Division 4 of Part 6A of the Rules respectively) and shows the effect of the scaling factor.

Item	Nature of item
Items 1 to 6	Number of Corresponding Forms Reported under Division B (Column 1) For each IRB subclass, indicate the number of forms reported in Division B from which the figures reported under column (2) or (3) can be referred. If more than one form has been filed in Division B for an IRB subclass (see paragraphs 11 and 12), an AI should indicate the total number of forms reported for that particular IRB subclass. For example, under item 4, if an AI reports one form for RM to individuals, two forms for QRRE and two forms for other retail exposures to individuals, the AI should then report in column (1): - for item 4(a)(i): (1) Form IRB_RETAIL - for item 4(b): (2) Form IRB_RETAIL - for item 4(d): (2) Form IRB_RETAIL Risk-weighted amount (Columns (2)-(4)) Report the risk-weighted amount of the IRB classes/subclasses under the IRB approach.
Item 7	Total risk-weighted amount for credit risk (IRB approach) before applying the scaling factor This is the sum of items 1 to 6.
Item 8	Total risk-weighted amount for credit risk (IRB approach) after applying the scaling factor In calculating the total risk-weighted amount under the IRB approach, an AI should apply a scaling factor specified by the MA to the risk-weighted amount calculated under the IRB approach (i.e. item 7). The current best estimate of the scaling factor is 1.06.
Item 9	Risk-weighted amount for CVA This is the sum of the risk-weighted amounts for CVA reported under Divisions A and B of Form MA(BS)3(IIIf).
Item 10	Total risk-weighted amount for credit risk (IRB Approach plus CVA)

This amount equals to the sum of items 8 and 9. This is also the figure reported in item 2.3 of Division A of Form MA(BS)3(I).

A partial breakdown of the aggregate risk-weighted amount (before applying the scaling factor) is provided:

- Item 10(a): the risk-weighted amount of default risk exposures in respect of derivative contracts and SFTs that are not subject to the IMM(CCR) approach;
- Item 10(b): the risk-weighted amount of default risk exposures in respect of derivative contracts and SFTs that are subject to the IMM(CCR) approach; and
- Item 10(c): the risk-weighted amount of exposures to financial institutions that are subject to the asset value correlation multiplier.

FORM: IRB_CSB

244. This form is used for reporting the risk-weighted amount and credit risk components of corporate, bank and sovereign exposures (except SL under supervisory slotting criteria approach which should be reported in Form IRB_SLSLOT[48]). In each reporting form, an AI should state whether the foundation IRB approach or advanced IRB approach is used, the IRB class and subclass for which the form is completed, and the portfolio type when more than one form is reported for an IRB subclass.

Item	Nature of item
Columns (1) & (2)	Internal rating system An AI using the IRB approach is required to have a minimum of seven grades for non-defaulted obligors and one for defaulted obligors in its internal rating systems. The AI can insert additional grades into column (1) if its internal obligor grades are more than eight. Under column (2), enter "N" for a non-defaulted obligor grade and "D" for a defaulted obligor grade. The obligor grades should be presented in an ascending order of their associated average PD. For consistency purposes, an AI should report every obligor grade within its internal rating systems in each form even though there is no exposure falling within a particular obligor grade.
Columns (3), (4) & (5)	PD range An AI should report a distribution of PD bands as is currently used for internal purposes. For each obligor grade, report the average PD (in percentage) under column (5). This estimate will be used for calculation of the risk-weighted amount for each exposure. The average PD for corporate, sovereign and bank exposures that are not in

[48] To avoid doubt, this means that an AI should capture its HVCRE exposures under the foundation IRB approach or advanced IRB approach in Form IRB_CSB, and those under the supervisory slotting criteria approach in Form IRB_SLSLOT.

Item	Nature of item
	default is the PD associated with the internal obligor grade to which that exposure is assigned, with a PD floor for corporate and bank exposures of 0.03%. For defaulted exposures, the average PD for corporate, sovereign and bank exposures is 100%. Report the lower bound and upper bound of the PD band for each obligor grade under columns (3) and (4) respectively. The average PD must lie between the lower and upper boundaries. Where an AI uses a single PD estimate for each obligor grade (i.e. no PD range), it should enter the same PD estimate as the upper and lower bounds of the range (i.e. the same PD estimates for all columns (3), (4) and (5)). In cases where an AI calculates its risk-weighted amount for both default risk and dilution risk of its purchased corporate receivables, only the PD estimate for default risk should be reported.
Columns (6) to (11)	EAD calculation For each obligor grade, give a breakdown of the exposures before recognized guarantees/credit derivative contracts by: - for columns (6)(i) and (6)(ii): on-balance sheet exposures before and after netting (if not covered by a valid bilateral netting agreement, the gross amount of an exposure should be reported in both columns) - for column (7): off-balance sheet exposures (other than derivative contracts and SFTs) - for column (8): derivative contracts and SFTs (after adjusting for the credit risk mitigating effect of a valid bilateral netting agreement or valid cross-product netting agreement, if any) An AI is required to provide the breakdown of the EAD derivation of off-balance sheet exposures in Division D for exposures other than derivative contracts and SFTs, and Division E for derivative contracts and SFTs. Specific reporting requirements for off-balance sheet exposures are given in the specific instructions for Form IRB_OBSND, Form IRB_OBSD_SACCR, Form IRB_OBSD_SFT_N_IMM and Form IRB_OBSD_IMM. Exposures with guarantees/credit derivative contracts recognized under the substitution framework should be reported as follows: **Foundation IRB approach** (i) Identify the IRB subclass of an exposure and report the amount of the exposure before recognized guarantees/credit derivative contracts under columns (6) to (8) in the grade applicable to the PD estimate of the underlying obligor. (ii) Divide the exposure amount into two portions: (a) the portion covered by credit protection and (b) the remaining uncovered portion.

Item	Nature of item

(iii) Report the uncovered portion as "Exposures after recognized guarantees/credit derivative contracts" under columns (9) to (11) of the same form, in the grade applicable to the PD estimate of the underlying obligor.

(iv) Report the secured portion as "Exposures after recognized guarantees/credit derivative contracts" under columns (9) to (11) of the form for the IRB subclass applicable for the credit protection provider and in the grade applicable to the PD estimate of the credit protection provider (i.e. PD substitution).

Advanced IRB approach

(i) Identify the IRB subclass of an exposure and report the amount of the exposure before recognized guarantees/credit derivative contracts under columns (6) to (8) in the grade applicable to the PD estimate of the underlying obligor.

(ii) Where the risk mitigating effects are addressed through

- PD substitution: report in the way similar to the foundation IRB approach;
- adjusting the PD estimate of the obligor: report the same exposure amount under columns (9) to (11) of the same form in a grade applicable to the adjusted PD estimate of the underlying obligor; or
- adjusting the LGD estimate: report the same exposure amount under columns (9) to (11) of the same form and in the grade applicable to the PD estimate of the underlying obligor.

Exposures with guarantees/credit derivative contracts recognized under the double default framework should be reported as follows:

(i) Identify the IRB subclass of an exposure and report the amount of the exposure before recognized guarantees/credit derivative contracts under columns (6) to (8) in the grade applicable to the PD estimate of the underlying obligor.

(ii) Divide the exposure amount into two portions: (a) the hedged portion covered by credit protection and (b) the remaining unhedged portion. In respect of the hedged portion, the risk-weighted amount should be calculated according to the risk-weight function set out in paragraph 64 (or, where applicable, adjusted by paragraph 68(ii) in respect of SME corporates; paragraph 69 in respect of exposures to financial institutions that are subject to the asset value correlation multiplier; or paragraph 75(i) in respect of HVCRE exposures). The risk-weighted amount of the unhedged exposure should be calculated in the same way as for all other corporate exposures to the same obligor of the underlying exposure according to the risk-weight function set out in paragraph

Item	Nature of item

62 (or, where applicable, adjusted by paragraph 68(i) in respect of SME corporates; paragraph 69 in respect of exposures to financial institutions that are subject to the asset value correlation multiplier; or paragraph 75(i) in respect of HVCRE exposures).

(iii) Report both hedged and unhedged portions as "Exposures after recognized guarantees/credit derivative contracts" under columns (9) to (11) of the same form in the grade applicable to the PD estimate of the underlying obligor.

Defaulted exposures cannot be subject to the double default framework. In case the underlying obligor of a hedged exposure defaults, such exposure should be treated as a direct exposure to the credit protection provider and then risk-weighted accordingly. Conversely, if the credit protection provider of a hedged exposure defaults, such exposure should remain with the underlying obligor and should be risk-weighted as an unhedged exposure to the underlying obligor. In case both the underlying obligor and the credit protection provider of a hedged exposure default, such exposure should be treated as a defaulted exposure to either the underlying obligor or the credit protection provider, depending on which party defaulted last.

For exposures without recognized guarantees/credit derivative contracts or without taking into account the credit risk mitigating effect of recognized guarantees/credit derivative contracts, the same exposure amount should be entered in both columns (6)(ii) to (8) and (9) to (11).

Column (12) EAD

This is the sum of columns (9) to (11), which is the EAD figure for calculating the risk-weighted amount of an exposure.

Column (13) Exposure weighted average LGD

LGD is reported in percentage.

$$\text{Exposure weighted average LGD} = \sum_i \text{LGD}_i \times \text{EAD}_i \;/\; \sum_i \text{EAD}_i$$

where:

LGD_i = the LGD associated with the i^{th} exposure in a grade.

EAD_i = the EAD associated with the i^{th} exposure allocated to a grade.

The percentage reported in column (13) should agree with column (12) of Form IRB_FIRBLGD or column (19) of Form IRB_AIRBLGD, where applicable.

Item	Nature of item
Column (14)	Exposure weighted average maturity value M is reported in years. Exposure weighted average maturity value $= \sum_i M_i \times EAD_i \; / \; \sum_i EAD_i$ where: M_I = the M associated with the i^{th} exposure in a grade. EAD_i = the EAD associated with the i^{th} exposure allocated to a grade.
Columns (15) to (18)	Risk-weighted amount Calculate the risk-weighted amount of each exposure and report the sum of risk-weighted amount (including the risk-weighted amount under the double default framework and for dilution risk and residual value risk, where applicable) for each obligor grade under column (15). Report under column (16) the risk-weighted amount of hedged exposures that are calculated according to the risk-weight function set out in paragraph 64 (or, where applicable, adjusted by paragraph 68(ii) in respect of SME corporates; paragraph 69 in respect of exposures to financial institutions that are subject to the asset value correlation multiplier; or paragraph 75(i) in respect of HVCRE exposures) under the double default framework. Report under column (17) the risk-weighted amount for dilution risk for purchased receivables. Report under column (18) the risk-weighted amount for residual value risk for leasing transactions.
Columns (19) & (20)	Memorandum items Report under column (19) the sum of the ***expected loss amount*** of exposures for each obligor grade. Report under column (20) the total number of obligors and credit protection providers for the exposures reported in column (12) for each obligor grade.
Columns (6) to (12), & (15) to (20)	Exposures subject to asset value correlation multiplier Report under columns (6) to (12) and (15) to (20) the AI's exposures to financial institutions that are subject to the asset value correlation multiplier.

FORM: IRB_SLSLOT

245. This form is used for reporting SL under supervisory slotting criteria approach. In each reporting form, an AI should specify the SL subclass for which the form is completed.

Item	Nature of item

Columns (1) & (2)

Internal rating system

An AI using the supervisory slotting criteria approach for SL is required to map its internal grades for the SL into five supervisory rating grades: "strong", "good", "satisfactory", "weak" and "default", each of which is assigned a supervisory risk-weight (SRW) as given in column (2), whilst the values of SRWs displayed depend on the IRB subclass selected for input:

- when an IRB subclass other than "specialized lending (high-volatility commercial real estate)" is selected for input, column (2) will show the SRWs applicable to specialized lending (other than HVCRE exposures) as set out in column (A) of the table below;
- when the IRB subclass of "specialized lending (high-volatility commercial real estate)" is selected for input, column (2) will show the SRWs applicable to HVCRE exposures, as set out in column (B) of the table below.

Supervisory rating grades	SRW (%) applicable to SL (other than HVCRE exposures) (A)	SRW (%) applicable to HVCRE exposures (B)
STRONG (a)	50	70
STRONG	70	95
GOOD (a)	70	95
GOOD	90	120
SATISFACTORY	115	140
WEAK	250	250
DEFAULT	0	0

Note: Supervisory rating grades marked by "(a)" denote preferential risk-weights. The preferential risk-weights under column (A) do not apply to specified ADC exposure.

Columns (3) to (8)

EAD calculation

For each supervisory rating grade, give a breakdown of the exposures before recognized guarantees/credit derivative contracts by:

- for columns (3)(i) and (3)(ii): on-balance sheet exposures before and after netting (if not covered by a valid bilateral netting agreement, the gross amount of an exposure should be reported in both columns)
- for column (4): off-balance sheet exposures (other than derivative contracts and SFTs)
- for column (5): derivative contracts and SFTs (after adjusting for the credit risk mitigating effect of a valid bilateral netting agreement or valid cross-product netting agreement, if any)

An AI is required to provide the breakdown of the EAD derivation of off-balance sheet exposures in Division D for exposures other than derivative contracts and SFTs, and Division E for derivative contracts and SFTs. Specific reporting requirements for off-balance sheet exposures are given in the specific instructions for Form IRB_OBSND, Form IRB_OBSD_SACCR, Form IRB_OBSD_SFT_N_IMM and Form IRB_OBSD_IMM.

Exposures with recognized guarantees/credit derivative contracts should be

Item	Nature of item
	reported as below: (i) Identify the IRB subclass of a SL and report the exposure amount before guarantees/credit derivative contracts under columns (3) to (5) in the supervisory rating grade applicable to the obligor. (ii) Divide the exposure amount into two portions: (a) the portion secured by credit protection; and (b) the remaining unsecured portion. (iii) Report the uncovered portion as "Exposures after recognized guarantees/credit derivative contracts" under columns (6) to (8) of the same form, in the supervisory rating grade applicable to the obligor. (iv) Report the secured portion as "Exposures after recognized guarantees/credit derivative contracts" under relevant columns of the applicable form for the IRB subclass applicable for the credit protection provider and in the grade applicable to the PD estimate of the credit protection provider (i.e. PD substitution). No double default framework is available for SL under supervisory slotting criteria approach. For exposures without recognized guarantees/credit derivative contracts or without taking into account the credit risk mitigating effect of recognized guarantees/credit derivative contracts, the same exposure amount should be entered in both columns (3)(ii) to (5) and (6) to (8).
Column (9)	EAD This is the sum of columns (6) to (8), which is the EAD figure for calculating the risk-weighted amount of an exposure.
Column (10)	Exposure weighted average maturity value Specific instructions for column (14) of Form IRB_CSB apply. The supervisory estimates of M under the foundation IRB approach are not applicable to SL under supervisory slotting criteria approach.
Column (11)	Risk-weighted amount This is calculated as follows: SRW (column (2)) x EAD (column (9)).
Columns (12) & (13)	Memorandum items Report the sum of the expected loss amount of exposures for each supervisory rating grade under column (12). Report under column (13) the total number of obligors and credit protection providers for the exposures reported in column (9) for each supervisory rating grade.

FORM: IRB_RETAIL

246. This form is used for reporting the different IRB subclasses of retail exposures. In each reporting form, an AI should state the retail IRB subclass for which the form is completed, and the portfolio type when more than one form is reported for an IRB subclass.

Item	Nature of item
Columns (1) & (2)	Internal rating system There is no minimum number of pools for retail exposures. Under column (2), enter "N" for a non-defaulted pool and "D" for a defaulted pool. The pools should be presented in an ascending order of their associated average PD. For consistency purposes, an AI should report every obligor grade within its internal rating systems in each form even though there is no exposure falling within a particular obligor grade.
Columns (3), (4) & (5)	PD range An AI should report a distribution of PD bands as is currently used for internal purposes. For each pool (i.e. PD band), report the average PD (in percentage) under column (5). This estimate will be used for calculation of risk-weighted amount of each pool. The average PD for retail exposures that are not in default should not be less than 0.03%. For defaulted exposures, the average PD is 100%. Report the lower bound and upper bound of the PD band for each pool under columns (3) and (4) respectively. The average PD must lie between the lower and upper boundaries. Where an AI uses a PD estimate for each pool (i.e. no PD range), it should enter the same PD estimate as the upper and lower bounds of the range (i.e. the same PD estimates for all columns (3), (4) and (5)). In cases where an AI calculates its risk-weighted amount for both default risk and dilution risk of its purchased retail receivables, only the PD estimate for default risk should be reported.
Columns (6) to (11)	EAD Calculation For each pool, give a breakdown of the exposures before recognized guarantees/credit derivative contracts by: - for columns (6)(i) and (6)(ii): on-balance sheet exposures before and after netting (if not covered by a valid bilateral netting agreement, the gross amount of an exposure should be reported in both columns) - for column (7): off-balance sheet exposures (other than derivative contracts and SFTs) - for column (8): derivative contracts and SFTs (after adjusting for the risk mitigating effect of a valid bilateral netting agreement or valid cross-product netting agreement, if any)

Item	Nature of item
	An AI is required to provide the breakdown of the EAD derivation of off-balance sheet exposures in Division D for exposures other than derivative contracts and SFTs, and Division E for derivative contracts and SFTs. Specific reporting requirements for off-balance sheet exposures are given in the specific instructions for Form IRB_OBSND, Form IRB_OBSD_SACCR, Form IRB_OBSD_SFT_N_IMM and Form IRB_OBSD_IMM. Exposures with guarantees/credit derivative contracts recognized under the substitution framework should be reported as below: (i) Identify the IRB subclass of an exposure and report the amount of the exposure before recognized guarantees/credit derivative contracts under columns (6) to (8) in the pool applicable to the underlying obligor. (ii) Where the credit risk mitigating effects are addressed through adjusting the PD estimate or the LGD estimate, report the same exposure amount under columns (9) to (11) of the same form in the pool applicable to the adjusted PD/LGD estimates of the underlying obligor. For exposures without recognized guarantees/credit derivative contracts or without taking into account the credit risk mitigating effect of guarantees/credit derivative contracts, the same exposure amount should be entered in both columns 6(ii) to (8) and (9) to (11).
Column (12)	EAD This is the sum of columns (9) to (11), which is the EAD figure for calculating the risk-weighted amount of an exposure.
Column (13)	LGD LGD for a pool is measured in percentage.
Column (14) to (16)	Risk-weighted amount Calculate the risk-weighted amount (including dilution risk and residual value risk, where applicable) for each pool under column (14). Report under column (15) the risk-weighted amount for dilution risk for purchased receivables. Report under column (16) the risk-weighted amount for residual value risk for leases.
Columns (17) & (18)	Memorandum items Report under column (17) the sum of the expected loss amount of exposures for each pool. Report under column (18) the total number of obligors and credit protection

Item	Nature of item
	providers for the exposures reported in column (12) for each pool.

FORM: IRB_EQUSRW

247. This form is used for reporting the risk-weighted amount of equity exposures that are subject to the simple risk-weight method other than those equity exposures reported in Form IRB_EQUO.

Item	Nature of item
Columns (1) & (2)	Portfolio An AI having equity exposures subject to the simple risk-weight method is required to divide such exposures into two portfolios: (i) publicly traded equity exposures and (ii) all other equity exposures. These portfolios are assigned with a supervisory risk-weight of 300% and 400% respectively.
Columns (3) & (4)	EAD Calculation For each portfolio, report the exposure amount before netting (column (3)) and the exposure amount after netting (column (4)). Where an exposure is not covered by any valid bilateral netting agreement or valid cross-product netting agreement, the same amount should be entered in both columns.
Column (5)	Risk-weighted amount This is calculated as follows: SRW (column (2)) x EAD (column (4)).
Column (6)	Memorandum item Report the number of equity exposures reported under publicly traded equity exposures and all other equity exposures.

FORM: IRB_EQUINT

248. This form is used for reporting the risk-weighted amount of equity exposures that are subject to the internal models method other than those equity exposures reported in Form IRB_EQUO.

Item	Nature of item
Column (1)	Portfolio An AI having equity exposures subject to the internal models method is required to divide such exposures into two portfolios: (i) publicly traded equity exposures and (ii) all other equity exposures.
Column (2) & (3)	EAD calculation Specific instructions for columns (3) and (4) of Form IRB_EQUSRW apply.
Columns (4)	Risk-weighted amount calculation: minimum risk-weights

Item	Nature of item
to (6)	Under column (4), report the EAD of the equity exposures for which the minimum risk-weights are applied in calculating the risk-weighted amount, which are 200% for publicly traded equity exposures and 300% for all other equity exposures. Under column (6), the amount of risk-weighted amount of the equity exposures where the minimum risk-weights are applied is calculated as follows: EAD (column (4)) x minimum risk-weight (column (5)).
Columns (7) to (9)	Risk-weighted amount calculation: internal models Under column (7), report the EAD of the equity exposures whose risk-weighted amount is calculated using the internal models and where the minimum risk-weights are not applicable. Under column (8), report the potential loss on the equity exposures from an assumed instantaneous shock equivalent to the one-tailed 99% confidence interval of the difference between quarterly returns and an appropriate risk-free rate computed over a long-term sample period. Under column (9), the risk-weighted amount of the equity exposures is calculated as follows: potential loss (column (8)) x 12.5).
Column (10)	Risk-weighted amount This is the sum of the risk-weighted amount calculated under the minimum risk-weights (column (6)) and under the internal models (column (9)).
Column (11)	Memorandum item Report the number of equity exposures reported under publicly traded equity exposures and all other equity exposures.

FORM: IRB_EQUPDLGD

249. This form is used for reporting the risk-weighted amount and credit risk components of equity exposures subject to the PD/LGD approach other than those equity exposures reported in Form IRB_EQUO. In each reporting form, an AI should state the IRB subclass for which the form is completed, and also the portfolio type when more than one form is reported for an IRB subclass.

Item	Nature of item
Columns (1) to (5)	Internal rating system: obligor grade and PD range Specific instructions for columns (1) to (5) of Form IRB_CSB apply.
Columns (6) & (7)	EAD calculation For each obligor grade, give a breakdown of exposures (there being no distinction required between on-balance sheet exposures and off-balance sheet exposures in relation to equity exposures) before recognized

Item	Nature of item
	guarantees/credit derivative contracts by exposures before and after netting for columns (6)(i) and (ii) (if not covered by a valid bilateral netting agreement or valid cross-product netting agreement, the gross amount of an exposure should be reported in both columns). Exposures with recognized guarantees/credit derivative contracts should be reported as follows: (i) Identify the IRB subclass of an exposure and report the amount of the exposure before recognized guarantees/credit derivative contracts under column (6) in the grade applicable to the PD estimate of the underlying obligor. (ii) Divide the exposure amount into two portions: (a) the portion covered by credit protection and (b) the remaining uncovered portion. (iii) Report the uncovered portion as "Exposures after recognized guarantees/credit derivative contracts" under column (7) of the same form, in the grade applicable to the PD estimate of the underlying obligor. (iv) Report the secured portion as "Exposures after recognized guarantees/credit derivative contracts" under, say, columns (9) to (11) of the IRB_CSB or IRB_RETAIL, as the case may be, for the IRB subclass applicable for the credit protection provider and in the grade applicable to the PD estimate of the credit protection provider (i.e. PD substitution). For exposures without recognized guarantees/credit derivative contracts or without taking into account the credit risk mitigating effect of recognized guarantees/credit derivative contracts, the same exposure amount should be entered in both columns (6)(ii) and (7).
Columns (8) to (11)	Risk-weighted amount Calculate the risk-weighted amount of each exposure and report the sum of risk-weighted amount for each grade under column (8). An AI should report the supplementary information on the risk-weighted amount reported under column (8): - for column (9): report the risk-weighted amount of the equity exposures where the factor of 1.5 is applied to the risk-weight derived from the corporate risk-weight function. - for column (10): report the risk-weighted amount of the equity exposures where the minimum risk-weight is applied (i.e. 100% for publicly traded equity exposures and privately owned equity exposures held for long-term investment, 200% for other publicly traded equity exposures and 300% for other equity exposures). - for column (11): report the risk-weighted amount of the equity exposures where the risk-weight of 1250% is applied.

Item	Nature of item
Column (12) & (13)	Memorandum item Report the sum of the expected loss amount of exposures for each grade under column (12). Report the number of equity exposures reported for each grade under column (13).

FORM: IRB_EQUCIS

250. This form is used for reporting the breakdown of the principal amounts or credit equivalent amount and the risk-weighted amounts of CIS exposures not constituting deductible holdings[49].

Item	Nature of item
Column (1)	Effective risk-weight of CIS exposures For each of the CIS calculation approaches used to calculate the risk-weighted amount of the CIS exposures, report the information of the CIS exposures in accordance with the range of the effective risk-weight specified in column (1).
Column (2)	Principal Amount or Credit Equivalent Amount Report the principal amount (if the CIS exposure is an on-balance sheet exposure) or the credit equivalent amount (if the CIS exposure is an off-balance sheet exposure) of the CIS exposure concerned.
Column (3)	Risk-weighted amount Report the risk-weighted amount of the CIS exposure concerned.

FORM: IRB_EQUO

251. This form is used for reporting the risk-weighted amount of specified equity exposures subject to prescribed supervisory risk-weights and are not reported in Form IRB_EQUSRW, Form IRB_EQUINT, Form IRB_EQUPDLGD or Form IRB_EQUCIS. These include:

(i) equity exposures to financial sector entities as specified under paragraph 122;
(ii) equity exposures to commercial entities as specified under paragraph 121; and

[49] To avoid doubt, for a CIS exposure constituting deductible holdings,

- the deductible holding should be reported in Form IRB_EQUSRW, IRB_EQUINT or IRB_EQUPDLGD, as the case requires, if the deductible holding is risk-weighted in accordance with section 183(1) of the Rules; or
- the deductible holding should be reported in Form IRB_EQUO if the deductible holding is risk-weighted in accordance with section 183(7) of the Rules.

(iii) the EL amount of equity exposures subject to the PD/LGD approach as specified under paragraph 133.

Item	Nature of item
Columns (1) & (2)	Portfolio An AI should report equity exposures that fall within paragraph 251.
Columns (3) & (4)	EAD Calculation For each portfolio, report the exposure amount before netting (column (3)) and the exposure amount after netting (column (4)). Where an exposure is not covered by any valid bilateral netting agreement or valid cross-product netting agreement, the same amount should be entered in both columns.
Column (5)	Risk-weighted amount This is calculated as follows: SRW (column (2)) x EAD (column (4)).
Column (6)	Memorandum item Report the number of equity exposures reported under each of the portfolios of equity exposures reported in this Form.

FORM: IRB_OTHER

252. This form is used for reporting the risk-weighted amount of cash items and other items that are not reported elsewhere in the return.

Item	Nature of item
Column (1)	Cash items An AI is required to report any cash item listed in the table under paragraph 139. Other items An AI is required to report any other item listed in the table under paragraph 140. The AI should provide a brief description of other items that are not specifically identified elsewhere in this return.
Columns (3) & (4)	EAD calculation An AI is required to report both the exposure amount before and after netting in columns (3) and (4) respectively. Where an item is not covered by a valid bilateral netting agreement or valid cross-product netting agreement, the same exposure amount should be entered in both columns.
Column (5)	Risk-weighted amount This is calculated as follows: EAD (column (4)) x SRW (column (2)).

FORM: IRB_FIRBLGD

253. This form is used for reporting the LGD information for corporate, sovereign and bank exposures under the foundation IRB approach. For each form (IRB_CSB) reported under Division B for corporate, sovereign and bank exposures under the foundation IRB approach (except SL under supervisory slotting criteria approach), an AI should file a corresponding form under IRB_FIRBLGD.

254. In each reporting form of IRB_FIRBLGD, an AI should state the IRB class and subclass for which the form is completed, and also the portfolio type where more than one form is reported for an IRB subclass.

Item	Nature of item
Columns (1) & (2)	Obligor grade Report the average PD for exposures assigned to each grade. The number of grades and the average PD figures reported should be the same as those reported in column (5) of Form IRB_CSB for that particular IRB subclass/portfolio type.
Column (3)	EAD Report the sum of EAD for exposures of each grade. This figure should be the same as column (12) of Form IRB_CSB for that particular IRB subclass/portfolio type.
Columns (4) to (11)	LGD Allocate or apportion the EAD of each exposure according to the following facility/collateral types: Column (4): Exposures with ***specific wrong-way risk*** (LGD: 100%) Column (5): Subordinated exposures (LGD: 75%) Column (6): Unsecured senior exposures (LGD: 45%) Column (7): Other recognized IRB collateral (LGD: 40%) Column (8): Recognized commercial real estate (LGD: 35%) Column (9): Recognized residential real estate (LGD: 35%) Column (10): Recognized financial receivables (LGD: 35%) Column (11): Recognized financial collateral (LGD: 0%) • If the exposure falls within paragraphs 89 or 90 (i.e. it is an exposure with specific wrong-way risk), report the full amount of EAD under column (4). • If the exposure is a **subordinated exposure** that is not captured under column (4), report the full amount of EAD under column (5). • If the exposure is an **unsecured senior exposure** that is not captured under column (4), report the full amount of EAD under column (6). • If a senior exposure is collateralized by **recognized financial**

Item	Nature of item

collateral (including gold), then the AI should enter the collateralized portion after the haircut adjustments (i.e. the greater of zero or E-E*) in column (11). The uncollateralized portion (E*) should be reported in column (4) or (6).

- For senior exposures collateralized by **recognized CRE** or **recognized RRE**, if the exposure is 140% covered by collateral, 100% of the exposure should be reported in column (8) or (9), as the case may be. For exposures which are less well covered by collateral but meet a minimum coverage of 30%, the following proportion of the exposures should be reported in column (8) or (9):

  - (percentage of exposure collateralized / 140%) x EAD

  The remainder should be reported in column (4) or (6).

- For senior exposures collateralized by **recognized financial receivables**, if an AI has an exposure that is 125% covered by collateral then it should report 100% of the exposure in column (10). For an exposure which is less well covered by collateral, the following proportion of the exposure should be reported in column (10):

  - (percentage of exposure collateralized / 125%) x EAD

  The remainder should be reported in column (4) or (6).

- For senior exposures collateralized by **other recognized IRB collateral**, if the exposure is 140% covered by collateral, 100% of the exposure should be reported in column (7). For an exposure which is less well covered by collateral but meet a minimum coverage of 30%, the following proportion of the exposure should be reported in column (7):

  - (percentage of exposure collateralized / 140%) x EAD

  The remainder should be reported in column (4) or (6).

Column (12) Exposure weighted average LGD

Report the exposure weighted average LGD for each obligor grade. These figures should be the same as those reported under column (13) of Form IRB_CSB for that particular IRB subclass/portfolio type.

FORM: IRB_AIRBLGD

255. This form is used for reporting the LGD information for corporate, sovereign and bank exposures under the advanced IRB approach. For each form (IRB_CSB) reported under Division B for corporate, sovereign and bank exposures under the advanced IRB approach (except SL under supervisory slotting criteria approach), an AI should file a corresponding form under IRB_AIRBLGD.

256. In each reporting form of IRB_AIRBLGD, an AI should state the IRB class and subclass for which the form is completed, and also the portfolio type where more than one form are reported for an IRB subclass.

Item	Nature of item
Columns (1) & (2)	Obligor grade Report the average PD for exposures assigned to each obligor grade. The number of obligor grades and the average PD figures reported should be the same as those reported in column (5) of Form IRB_CSB for that particular IRB subclass/portfolio type.
Column (3)	EAD Report the sum of EAD for exposures of each grade. These figures should be the same as those reported under column (12) of Form IRB_CSB for that particular IRB subclass/portfolio type.
Columns (4) to (18)	LGD Allocate or apportion the EAD of each exposure according to the ***facility grades*** (i.e. columns (4) to (18)), each of which is associated with a specified LGD. An AI should specify the percentage of LGD under each facility grade, together with a brief description where possible except that the value of LGD in column (18) (or the last column under this item if dynamic rows are inserted after column (17)) is set at 100%.
Column (19)	Exposure weighted average LGD Report the exposure weighted average LGD for each grade. These figures should be the same as those reported under column (13) of Form IRB_CSB for that particular IRB subclass/portfolio type.

FORM: IRB_OBSND

257. This form is used for reporting the breakdown of off-balance sheet exposures other than derivative contracts and SFTs for corporate, sovereign, bank and retail exposures. For corporate, sovereign and bank exposures, an AI using the foundation IRB approach to derive the risk-weighted amount for these exposures should report information under (A1) and those using the advanced IRB approach should report information under (A2). (B) is for reporting of retail exposures.

Item	Nature of item
Items (1) to (11)	Off-balance sheet exposures (Other than Default Risk Exposures in respect of derivative contracts and SFTs) An AI is required to report in items 1 to 11 each of its off-balance sheet exposures other than default risk exposures in respect of derivative contracts and SFTs as listed in the table under paragraph 165. Exposures reported in item 11 may include the credit exposures to persons holding collateral posted by the AI (other than collateral posted for

Item	Nature of item
	centrally cleared trades and held by CCPs) in a manner that is not bankruptcy remote from the persons. An AI should provide, in all cases, the principal amount and credit equivalent amount of the exposures before and after recognized guarantees/credit derivative contracts. The AI is also required to estimate CCFs for those types without prescribed CCFs. For such types of off-balance sheet exposures, the AI is required to indicate the CCF (or a representative value of a range of CCFs).
Items (C_T & D_T)	Total credit equivalent amount Report in item C_T the sum of the credit equivalent amount (before recognized guarantees/credit derivative contracts) reported in items 1 to 11. Report in item D_T the sum of the credit equivalent amount (after recognized guarantees/credit derivative contracts) reported in items 1 to 11.

FORM: IRB_OBSD_SACCR

258. This form is used for reporting the breakdown of the default risk exposures of derivative contracts[50] for corporate, sovereign, bank and retail exposures using the SA-CCR approach.

Item	Nature of item
Items (1) to (5)	Default risk exposures in respect of derivative contracts An AI is required to report the derivative contracts in accordance with the asset classes (viz. ***exchange rate contract***, ***interest rate contract***, equity-related derivative contract, ***credit-related derivative contract***, and ***commodity-related contract***) and the nature of the transactions into items (1) to (5) of Tables A1 to A3 (refer to the following instructions for details).
Items (A(i)) and (A(ii))	Total default risk exposure Report in item (A(i)) the total default risk exposures (before recognized guarantees / credit derivative contracts) reported in items (1) to (5). Report in item (A(ii)) the total default risk exposures (after recognized guarantees / credit derivative contracts) reported in items (1) to (5).

Table	Nature of item
A1	Unmargined contracts not subject to recognized netting An AI is required to report in Table A1 derivative contracts (a) that fall

[50] The exposures covered include LSTs arising from derivative contracts – see their respective definitions under section 2(1) of the Rules.

Item	Nature of item
	within the definition of unmargined contract in section 226BA of the Rules; and (b) that are not subject to recognized netting. Contracts that fall within section 226BH(2) or (4) of the Rules and contracts that have been removed from the netting sets concerned under section 226BH(3)(b) or (5) of the Rules should also be reported in this Table. Report the stated notional amount of the derivative contracts in column (a) of items (1) to (5). Report the replacement cost and the potential future exposure of the derivative contract calculated in accordance with Division 1A of Part 6A of the Rules by using the formula applicable to the contracts in columns (b) and (c) respectively. In the case of a sold option whose default risk exposure is set to zero under 226BH(2) or (3) of the Rules, the replacement cost and the potential future exposure of the option may be reported as zero. Report the default risk exposure of the derivative contract in column (d(i)), and report the default risk exposure after taking into account recognized guarantees/credit derivative contracts in column (d(ii)).
A2	Margined contracts not subject to recognized netting Report in Table A2 derivative contracts (a) that fall within the definition of margined contract in section 226BA of the Rules and (b) that are not subject to recognized netting. The reporting arrangements described in Table A1 above also apply to Table A2. In addition, if the default risk exposure calculated for a margined contract on an unmargined basis is regarded as the default risk exposure of the contract, the default risk exposure calculated on an unmargined basis should be reported in this Table (see section 226BH(1) of the Rules). If more than one derivative contract is covered by a single variation margin agreement, (a) report the stated notional amount of each of the derivative contracts in items (1a), (2a), (3a), (4a) or (5a), as the case requires; and (b) there is no need to report the replacement cost, potential future exposure and default risk exposure calculated for these contracts by type of contract (i.e. items (1) to (5)), the default risk exposures calculated should be reported in columns (A(i)) and (A(ii)) (after taking into account recognized guarantees / credit derivative contracts, if any) of this Table.
A3	Contracts (margined or unmargined) subject to recognized netting Report in Table A3 derivative contracts (whether margined or not) that are subject to recognized netting.

Item	Nature of item
	The default risk exposure of a netting set should be reported in columns (A(i)) and (A(ii)) (after taking into account recognized guarantees / credit derivative contracts, if any) of this Table.
B1	CCP-related transactions (including offsetting transactions) Report the amounts under Tables A1 to A3 that are related to offsetting transactions or CCP-related transactions entered into by the AI with clearing members or clearing clients.

FORM: IRB_OBSD_SFT_N_IMM

259. This form is used for reporting the breakdown of the default risk exposures of SFTs[51] (including centrally cleared trades that are treated as bilateral trades) for corporate, sovereign, bank and retail exposures which are not subject to the IMM(CCR) approach.

Item	Nature of item
Item (1)	SFTs not subject to recognized netting An AI is required to report the amount of assets sold, transferred, loaned or paid and the default risk exposures in respect of SFTs (before and after recognized guarantees / credit derivative contracts) that are not subject to recognized netting in accordance with section 226MJ of the Rules.
Item (2)	SFTs subject to recognized netting Report the amount of assets sold, transferred, loaned or paid and the default risk exposures in respect of SFTs (before and after recognized guarantees / credit derivative contracts) that are subject to recognized netting in accordance with section 226MK or 226ML of the Rules.
Item (B(i)) and (B(ii))	Total default risk exposures Report in item (B(i)) the total default risk exposures (before recognized guarantees / credit derivative contracts) reported in items (1) and (2). Report in item (B(ii)) the total default risk exposures (after recognized guarantees / credit derivative contracts) reported in items (1) and (2).
Item (3)	CCP-related transactions (including offsetting transactions) Report the amounts that are related to offsetting transactions or CCP-related transactions entered into by the AI with clearing members or clearing clients.

[51] The exposures covered include LSTs arising from SFTs – see their respective definitions under section 2(1) of the Rules.

FORM: IRB_OBSD_IMM

260. This form is used for reporting the breakdown of the default risk exposures of derivative contracts and SFTs[50, 51] (including centrally cleared trades that are treated as bilateral trades) for corporate, sovereign, bank and retail exposures under the IMM(CCR) approach. An AI should refer to paragraphs 153(a) and 178 to 181 and report in this form for different IRB classes the principal amounts and default risk exposures of derivative contracts and SFTs that are associated with the *higher* of the portfolio-level risk-weighted amount of the relevant exposures referred to in paragraph 179(i) and (ii).

Item	Nature of item
Items (1) to (7)	Derivative contracts and SFTs An AI is required to report in items 1 to 7 each of its derivative contracts (other than LSTs), SFTs (other than LSTs) and LSTs (regardless of the nature of the LSTs) by IRB class. AIs should report relevant exposures that are not subject to valid bilateral netting agreements or valid cross-product netting agreements, or exposures that are required to be treated as a separate netting set under section 226J(1) of the Rules, in items 1 to 3 as appropriate. Relevant exposures that are subject to valid bilateral netting agreements or valid cross-product netting agreements and which do not fall within section 226J(1) of the Rules should be reported in items 4 to 7 as appropriate. An AI should provide, in all cases, the total notional amount (which, in respect of SFTs, is the total amount of assets sold, transferred, loaned or paid under the SFTs) and default risk exposure of the transactions before and after recognized guarantees/credit derivative contracts (but after netting in both instances).
Items (B(ii) & B(iii))	Total default risk exposures Report in item B(ii) the sum of the default risk exposures (before recognized guarantees/credit derivative contracts but after netting) reported in items 1 to 7 for different IRB classes. Report in item B(iii) the sum of the default risk exposures (after recognized guarantees/credit derivative contracts and netting) reported in items 1 to 7 for different IRB classes.
Items (8a), (8b(i)) and (8b(ii))	CCP-related transactions (including offsetting transactions) Out of the amounts reported in items (1) to (7), report in item (8), by IRB class, the amounts that are related to offsetting transactions or CCP-related transactions entered into by the AI with clearing members or clearing clients.

FORM: IRB_ELEP

261. This form is used for reporting the EL amount and eligible provisions by IRB class/subclass and calculating the difference between the total EL amount and total eligible provisions (if any) for the computation of capital base.

Item	Nature of item
Items (1) to (4)	Corporate, sovereign, bank and retail exposures An AI should report by IRB class/subclass the EL amount and eligible provisions for non-defaulted exposures (columns (a) and (d)) and defaulted exposures (columns (b) and (e)).
Item (5)	Total This is the sum of items (1) to (4).
Items (6) to (9)	EL-EP calculation Excess of total EL amount over total eligible provisions will be reported in item 6. This figure will be deducted from an AI's CET1 capital, in accordance with section 43(1)(i) of the Rules (see Form MA(BS)3(II)). Surplus of total eligible provisions over total EL amount will be reported in item 7. This figure will be compared to a ceiling reported in item 8 (i.e. 0.6% x item 8 of Form IRB_TOTCRWA) and then the lower amount is reported in item 9. This figure will be added to an AI's Tier 2 capital (see Form MA(BS)3(II)).

Hong Kong Monetary Authority
June 2024

Annex IIIc-A: Illustrations

1. Below are some illustrative examples for the calculation of the risk-weighted amounts under the foundation IRB approach. These examples are reported in the attached returns for Bank XYZ.

(A) Corporate, Sovereign and Bank Exposures

2. For simplicity reasons, Bank XYZ is assumed to have one internal rating system for all of its corporate, sovereign and bank exposures. This internal rating system comprises 8 obligor grades, each associated with a PD estimate as given in Tables A and B below. Table A gives the risk-weights for SME Corporates while Table B gives the risk-weights for Other Corporates.

Table A: Bank XYZ's Internal Rating System for Corporate, Sovereign and Bank Exposures – SME Corporates (M = 2.5 years ; obligor's reported annual revenue = HK$50 Mn)

Grade	Non-defaulted (P) / Defaulted (D)	PD	IRB Risk-Weight (RW)			
			LGD: 75%	LGD:45%	LGD:40%	LGD:35%
1	P	0.03%	18.81%	11.30%	10.03%	8.78%
2	P	0.25%	65.01%	39.01%	34.67%	30.34%
3	P	0.75%	108.57%	65.14%	57.90%	50.67%
4	P	1.50%	136.85%	82.11%	72.99%	63.87%
5	P	3.00%	162.63%	97.58%	86.74%	75.90%
6	P	6.00%	199.14%	119.48%	106.21%	92.93%
7	P	20.00%	314.03%	188.42%	167.48%	146.55%
8	D	100.00%	-	-	-	-

Table B: Bank XYZ's Internal Rating System for Corporate, Sovereign and Bank Exposures – Other Corporates (M = 2.5 years)

Grade	Non-defaulted (P) / Defaulted (D)	PD	IRB Risk-Weight (RW)			
			LGD: 75%	LGD:45%	LGD:40%	LGD:35%
1	P	0.03%	24.05%	14.44%	12.83%	11.22%
2	P	0.25%	82.45%	49.47%	43.97%	38.48%
3	P	0.75%	137.96%	82.78%	73.58%	64.38%
4	P	1.50%	175.99%	105.59%	93.86%	82.13%
5	P	3.00%	214.07%	128.44%	114.17%	99.90%
6	P	6.00%	266.02%	159.61%	141.88%	124.14%
7	P	20.00%	397.05%	238.23%	211.76%	185.29%
8	D	100.00%	-	-	-	-

(i) Example 1 (Corporate exposure with on-balance sheet netting)

Corporate A, classified as grade 5 under the Bank XYZ's internal rating system, borrowed a senior (i.e. not subordinated) loan of HK$100 Mn from Bank XYZ. Corporate A has also placed a pledged deposit of HK$10 Mn with Bank XYZ. Both the loan and the pledged deposit are subject to a valid bilateral netting agreement.

Given:

- Corporate A's group total annual revenue = HK$500 Mn or more
- Specific provision = HK$1 Mn
- No currency and maturity mismatch between the loan and the pledged deposit

Workings:

- Estimated PD (grade 5) for Corporate A = 3%
- LGD = 45%
- RW = 128.44%
- M = 2.5 years

(a) Exposures *before* recognized guarantees/credit derivative contracts:

(1) On-balance sheet exposures *before* netting = HK$100 Mn

(2) On-balance sheet exposures *after* netting

= max [0, exposures - liabilities x (1 - H_{fx})]

= HK$100 Mn - HK$10 Mn

= HK$90 Mn

(b) Exposures *after* recognized guarantees/credit derivative contracts (on-balance sheet exposures after netting) = HK$90 Mn (i.e. EAD)

(c) Risk-weighted amount of the exposure to Corporate A

= EAD x RW

= HK$90 Mn x 1.2844

= HK$115.596 Mn

(d) EL-eligible provisions calculation:

(1) EL amount

= EAD x PD x LGD

= HK$90 Mn x 0.03 x 0.45

= HK$1.215 Mn

(2) Eligible provisions = HK$1 Mn

(ii) Example 2 (SME corporate exposure partially guaranteed by a bank)

Corporate B, classified as grade 5 under the Bank XYZ's internal rating system, borrowed a subordinated loan of HK$100 Mn from Bank XYZ. HK$40 Mn of this

exposure is guaranteed by Bank C, classified as grade 2 under the Bank XYZ's internal rating system. The guaranteed commitment is a senior claim on Bank C.

Given:

- Corporate B's group total annual revenue = HK$50 Mn or below
- Specific provision = HK$1.72 Mn
- No currency and maturity mismatch between the transaction and the guarantee
- PD substitution (i.e. not subject to double default framework)

Workings:

Corporate B:

- Estimated PD (grade 5) for Corporate B = 3%
- LGD of the uncovered portion = 75%
- RW = 162.63%
- M = 2.5 years

(a) Exposures *before recognized* guarantees/credit derivative contracts (on-balance sheet exposures before/after netting) = HK$100 Mn

(b) Exposures *after* recognized guarantees/credit derivative contracts (on-balance sheet exposures after netting)
= HK$100 - HK$40 Mn
= HK$60 Mn (i.e. EAD)

(c) Risk-weighted amount for the exposure to Corporate B (i.e. portion not covered by the guarantee issued by Bank C)
= EAD x RW
= HK$60 Mn x 1.6263
= HK$97.578 Mn

(d) EL-eligible provisions calculation:
(1) EL amount
= EAD x PD x LGD
= HK$60 Mn x 0.03 x 0.75
= HK$1.35 Mn
(2) Eligible provisions
= HK$1.72 Mn x 60/100 (or a risk-weighted basis, such as based on the EL amount i.e. 1.35/(1.35 + 0.045))
= HK$1.032 Mn

Bank C:

- Estimated PD (grade 2) for Bank C = 0.25%
- LGD of the guaranteed portion = 45%

- RW = 49.47%
- M = 2.5 years

(e) Exposures *after* recognized guarantees/credit derivative contracts (on-balance sheet exposures after netting) = HK$40 Mn (i.e. EAD)

(f) Risk-weighted amount of the exposure to Bank C (i.e. the guaranteed portion)
= EAD x RW
= HK$40 Mn x 0.4947
= HK$19.788 Mn

(g) EL-eligible provisions calculation:

(1) EL amount
= EAD x PD x LGD
= HK$40 Mn x 0.0025 x 0.45
= HK$0.045 Mn

(2) Eligible provisions
= HK$1.72 Mn x 40/100 (or a risk-weighted basis, such as based on the EL amount i.e. 0.045/(1.35 + 0.045))
= HK$0.688 Mn

(iii) Example 3 (Secured corporate exposure fully guaranteed by a sovereign)

Corporate D, classified as grade 5 under the Bank XYZ's internal rating system, borrowed a senior loan of HK$100 Mn from Bank XYZ. The transaction is secured by a BBB rated six-year corporate ***bond*** of HK$40 Mn and another recognized IRB collateral of HK50 Mn. Also, the exposure is fully guaranteed by Central Bank E which is classified as grade 4 under the Bank XYZ's internal rating system.

Given:
- Corporate D's group total annual revenue = HK$500 Mn or more
- Haircut for the BBB rated six-year corporate bond (i.e. credit quality grade 3 of residual maturity >5 years) = 12%
- No currency and maturity mismatch between the transaction and the collateral/guarantee
- No specific provisions made

Workings:

Corporate D:
- Estimated PD (grade 5) for Corporate D = 3%
- M = 2.5 years

(a) Exposures before recognized guarantees/credit derivative contracts (on-balance sheet exposures before/after netting) = HK$100 Mn

(b) Exposures after recognized guarantees/credit derivatives (on-balance sheet exposures after netting)
= HK$100 Mn - HK$100 Mn
= HK$0 Mn

(c) Eligible provisions = HK$0 Mn

Sovereign E:

- Estimated PD (grade 4) for Sovereign E = 1.5%
- M = 2.5 years

(d) Exposures after recognized guarantees/credit derivative contracts (on-balance sheet exposures after netting) = HK$100 Mn (i.e. EAD)

(e) Allocation of EAD according to collateral type:

(1) Portion fully secured by recognized financial collateral:
= C x (1 - H_c - H_{fx})
= HK$40 Mn x (1 - 0.12 - 0)
= HK$35.2 Mn (LGD = 0%)

(2) Portion fully secured by other recognized IRB collateral:

- *Value of the physical collateral*[52]*:*

= C x (1 - H_c - H_{fx})
= HK$50 Mn x (1 - 0 - 0)
= HK$50 Mn

- *Ratio of the value of the other recognized IRB collateral to the reduced exposure (after recognizing the effect of recognized financial collateral):*

= [HK$50 Mn / (HK$100 Mn - HK$35.2 Mn)] x 100%
= 77% (between C* of 30% and C** of 140%)

- *Portion fully secured by other recognized IRB collateral:*

= Value of the other recognized IRB collateral / C**
= HK$50 Mn / 140%
= HK$35.714 Mn (LGD = 40%, RW = 93.86%)

(3) Unsecured portion:
= HK$100 Mn - HK$35.2 Mn - HK$35.714 Mn
= HK$29.086 Mn (LGD = 45%, RW = 105.59%)

(f) Exposure weighted average LGD
= ($E_{financial}$ x 0% + E_{other} x 40% + $E_{unsecured}$ x 45%) / E

[52] Haircut (H_c) for eligible IRB collateral is 0%.

= (HK$35.2 Mn x 0%) + (HK$35.714 Mn x 40%) + (HK$29.086 Mn x 45%) / HK$100 Mn
= 27.37%

(g) Risk-weighted amount of the exposure to Central Bank E
= $(EAD \times RW)_{financial} + (EAD \times RW)_{other} + (EAD \times RW)_{unsecured}$
= (HK$35.2 Mn x 0) + (HK$35.714 Mn x 0.9386) + (HK$29.086 Mn x 1.0559)
= HK$64.233 Mn

(h) EL-eligible provisions calculation:

(1) EL amount
= $(EAD \times PD \times LGD)_{financial} + (EAD \times PD \times LGD)_{other} + (EAD \times PD \times LGD)_{unsecured}$ (or = EAD x PD x Exposure weighted average LGD)
= (HK$35.2 Mn x 0.015 x 0) + (HK$35.714 Mn x 0.015 x 0.4) + (HK$29.086 Mn x 0.015 x 0.45) or (= HK$100 Mn x 0.015 x 0.2737)
= HK$0.411 Mn

(2) Eligible provisions = HK$0 Mn

(iv) Example 4 (Clean Corporate exposure in defaulted grade)

Corporate F, classified as grade 8 (i.e. default) under the Bank XYZ's internal rating system, borrowed a senior unsecured loan of HK$100 Mn from Bank XYZ.

Given:
- Specific provisions = HK$40 Mn
- Best estimate of EL = 40%

Workings:
- Estimated PD (grade 8) for Corporate F = 100%
- LGD = 45%

(a) Exposures *before/after recognized* guarantees/credit derivative contracts (on-balance sheet exposures before/after netting) = HK$100 Mn (i.e. EAD)

(b) Risk-weighted amount of the exposure to Corporate F
= max [0, LGD - EL] x 12.5 x EAD
= (45% - 40%) x 12.5 x HK$100 Mn
= HK$62.5 Mn

(c) EL-eligible provisions calculation:

(1) EL amount
= EL x EAD
= 0.4 x HK$100 Mn
= HK$40 Mn

(2) Eligible provisions = HK$40 Mn

(B) Equity Exposures

(v) Example 5 (Market-based approach: Internal models method)

Bank XYZ has an equity holding in Company G, which is traded on a ***recognized stock exchange*** and does not fall within paragraph 121 or 122 of the instructions. The fair value of the equity holding is HK$20 Mn. Any change in its fair value will be flowing directly through income and into ***regulatory capital***. The potential loss on the equity holding as derived by using internal VaR model is HK$4 Mn.

Given:

- No specific provision made

Workings:

(a) Exposures *before/after netting* = HK$20 Mn

(b) Risk-weighted amount of equity exposure to Company G:

(1) Minimum risk-weighted amount (using the simple risk weight)
= EAD x RW
= HK$20 Mn x 200%
= HK$40 Mn

(2) Risk-weighted amount under internal VaR model
= Potential loss x 12.5
= HK$4 Mn x 12.5
= HK$50 Mn

Risk-weighted amount = max [(1), (2)] = HK$50 Mn

(c) Eligible provisions = HK$0 Mn

(C) Retail Exposures

(vi) Example 6 (QRRE)

Within the exposure subclass of QRRE, Bank XYZ is using a separate internal rating system for revolving personal loans with PD estimates as given below. There are four defaulted pools with LGD estimates of 30%, 60%, 85% and 100%.

Table C: Bank XYZ's Internal Rating System for QRRE

Pool	Non-defaulted (P) / Defaulted (D)	PD	IRB Risk Weight (RW)		
			LGD: 85%	LGD:60%	LGD:30%
1	P	0.05%	2.86%	2.02%	1.01%
2	P	0.25%	10.88%	7.68%	3.84%

Pool	Non-defaulted (P) / Defaulted (D)	PD	IRB Risk Weight (RW)		
			LGD: 85%	LGD:60%	LGD:30%
3	**P**	0.75%	26.06%	18.40%	9.20%
4	**P**	3.00%	73.03%	51.55%	25.78%
5	**P**	6.00%	116.37%	82.14%	41.07%
6	**P**	15.00%	196.23%	138.51%	69.26%
7	**D**	100.00%	-	-	-

Bank XYZ has granted an unsecured revolving loan facility of HK$1 Mn to Mr. H, of which HK$0.8 Mn has been drawn down and is outstanding. The exposure to Mr. H is classified in the retail pool with a PD estimate of 0.75% (i.e. grade 3) and LGD estimate of 60%.

Given:

- No specific provision made
- The undrawn portion is unconditionally cancellable with a CCF of 0%
- Estimated PD (grade 3) for Mr. H = 0.75%
- LGD = 60%
- RW = 18.40%

Workings:

(a) Exposures *before/after recognized* guarantees/credit derivative contracts:

(1) On-balance sheet exposures before/after netting = HK$0.8 Mn

(2) Off-balance sheet exposures (Other than derivative contracts and SFTs)
= Principal amount x CCF
= (HK$1 Mn - HK$0.8 Mn) x 0%
= HK$0 Mn

(b) Risk-weighted amount of the exposure to Mr. H:
= EAD x RW
= HK$0.8 Mn x 0.184
= HK$0.147 Mn

(c) EL-eligible provisions calculation:

(1) EL amount
= EAD x PD x LGD
= HK$0.8 Mn x 0.0075 x 0.6
= HK$0.004 Mn

(2) Eligible provisions = HK$0 Mn

Annex IIIc-B: Structure of the IRB Return [MA(BS)3(IIIc)]

Division	Template	IRB Class/Subclass To Be Reported2
A.	IRB_TOTCRWA	For all IRB classes/subclasses under IRB approach
B.	IRB_CSB	For each of the following IRB subclasses for corporate/sovereign/bank exposures under FIRB approach or AIRB approach :- • Corporate exposures: (i) Small-and-medium sized corporates • Corporate exposures: (ii) Other corporates • Corporate exposures: (iii) Specialized Lending (high-volatility commercial real estate) • Sovereign exposures: (i) Sovereigns • Sovereign exposures: (ii) Sovereign foreign public sector entities • Sovereign exposures: (iii) Multilateral development banks • Bank exposures: (i) Banks • Bank exposures: (ii) Securities firms • Bank exposures: (iii) Public sector entities (excluding sovereign foreign public sector entities)
	IRB_SLSLOT	For each of the following IRB subclasses where supervisory slotting criteria approach is applicable:- • Corporate exposures: (i) Specialized Lending under supervisory slotting criteria approach (project finance) • Corporate exposures: (ii) Specialized Lending under supervisory slotting criteria approach (object finance) • Corporate exposures: (iii) Specialized Lending under supervisory slotting criteria approach (commodities finance) • Corporate exposures: (iv) Specialized Lending under supervisory slotting criteria approach (income-producing real estate) • Corporate exposures: (v) Specialized Lending (high-volatility commercial real estate)
	IRB_RETAIL	For each of the following IRB subclasses for retail exposures under retail IRB approach:- • Retail exposures: (i) Residential mortgages to individuals • Retail exposures: (ii) Residential mortgages to property-holding shell companies • Retail exposures: (iii) Qualifying revolving retail exposures • Retail exposures: (iv) Small business retail exposures • Retail exposures: (v) Other retail exposures to individuals
	IRB_EQUSRW	Equity exposures: Market-based approach: Simple risk-weight method
	IRB_EQUINT	Equity exposures: Market-based approach: Internal models method

Division	Template	IRB Class/Subclass To Be Reported2
	IRB_EQUPDLGD	For each of the following IRB subclasses for equity exposures under PD/LGD approach:- • Equity exposures: (i) Publicly traded equity exposures held for long-term investment • Equity exposures: (ii) Privately owned equity exposures held for long-term investment • Equity exposures: (iii) Other publicly traded equity exposures • Equity exposures: (iv) Other equity exposures
	IRB_EQUCIS	Equity exposures: CIS exposures
	IRB_EQUO	Equity exposures: Market-based approach or PD/LGD Approach: Exposures not reported in Forms IRB_EQUSRW, IRB_EQUINT, IRB_EQUPDLGD or IRB_EQUCIS
	IRB_OTHER	For cash items and other items under specific risk-weight approach
C.	IRB_FIRBLGD	For each of the IRB subclasses for corporate/sovereign/bank exposures reported under FIRB approach in Division B
	IRB_AIRBLGD	For each of the IRB subclasses for corporate/sovereign/bank exposures reported under AIRB approach in Division B
D.	IRB_OBSND	For the IRB classes of corporate/sovereign/bank/retail exposures under IRB approach
E.	IRB_OBSD_SACCR	For the IRB classes of corporate/sovereign/bank/retail exposures under IRB approach: Default risk exposures in respect of derivative contracts under SA-CCR approach
	IRB_OBSD_SFT_N_IMM	For the IRB classes of corporate/sovereign/bank/retail exposures under IRB approach: Default risk exposures in respect of SFTs not under IMM(CCR) approach
	IRB_OBSD_IMM	For the IRB classes of corporate/sovereign/bank/retail exposures under IRB approach: Default risk exposures under IMM(CCR) approach
F.	IRB_ELEP	For the IRB classes of corporate/sovereign/bank/retail exposures under IRB approach

Annex IIIc-C: Illustrative Risk-weights under IRB Approach

IRB Class / Subclass	Corporate Exposures		Residential Mortgages		Small Business Retail Exposures and Other Retail Exposures to Individuals		Qualifying Revolving Retail Exposures	
LGD:	45%	45%	45%	25%	45%	85%	45%	85%
Maturity 2.5 years								
Annual revenue (HK$ Mn)	500	50						
PD: 0.03%	14.44%	11.30%	4.15%	2.30%	4.45%	8.41%	0.98%	1.85%
0.05%	19.65%	15.39%	6.23%	3.46%	6.63%	12.52%	1.51%	2.86%
0.10%	29.65%	23.30%	10.69%	5.94%	11.16%	21.08%	2.71%	5.12%
0.25%	49.47%	39.01%	21.30%	11.83%	21.15%	39.96%	5.76%	10.88%
0.40%	62.72%	49.49%	29.94%	16.64%	28.42%	53.69%	8.41%	15.88%
0.50%	69.61%	54.91%	35.08%	19.49%	32.36%	61.13%	10.04%	18.97%
0.75%	82.78%	65.14%	46.46%	25.81%	40.10%	75.74%	13.80%	26.06%
1.00%	92.32%	72.40%	56.40%	31.33%	45.77%	86.46%	17.22%	32.53%
1.30%	100.95%	78.77%	67.00%	37.22%	50.80%	95.95%	21.02%	39.70%
1.50%	105.59%	82.11%	73.45%	40.80%	53.37%	100.81%	23.40%	44.19%
2.00%	114.86%	88.55%	87.94%	48.85%	57.99%	109.53%	28.92%	54.63%
2.50%	122.16%	93.43%	100.64%	55.91%	60.90%	115.03%	33.98%	64.18%
3.00%	128.44%	97.58%	111.99%	62.22%	62.79%	118.61%	38.66%	73.03%
4.00%	139.58%	105.04%	131.63%	73.13%	65.01%	122.80%	47.16%	89.08%
5.00%	149.86%	112.27%	148.22%	82.35%	66.42%	125.45%	54.75%	103.41%
6.00%	159.61%	119.48%	162.52%	90.29%	67.73%	127.94%	61.61%	116.37%
10.00%	193.09%	146.51%	204.41%	113.56%	75.54%	142.69%	83.89%	158.47%
15.00%	221.54%	171.91%	235.72%	130.96%	88.60%	167.36%	103.89%	196.23%
20.00%	238.23%	188.42%	253.12%	140.62%	100.28%	189.41%	117.99%	222.86%

Note:

1. The above table provides illustrative risk-weights for UL calculated for the IRB class of corporate exposures and the IRB subclasses of retail exposures under the IRB approach. Each set of risk-weights is produced using the appropriate risk-weight functions. The inputs used to calculate the illustrative risk weights include measures of PD and LGD and an assumed M of 2.5 years.

2. A firm-size adjustment applies to exposures falling within the IRB subclass of small-and-medium sized corporates (defined as exposures to a corporate where the reported total annual revenue for the consolidated group of which the corporate is a part is less than HK$500 million). Accordingly, the firm-size adjustment is made in determining the second set of risk-weights provided in the second column of corporate exposures given that the annual revenue of the corporate receiving the exposure is assumed to be HK$50 million.