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 (BCR).

2. These completion instructions contain the following four sections:

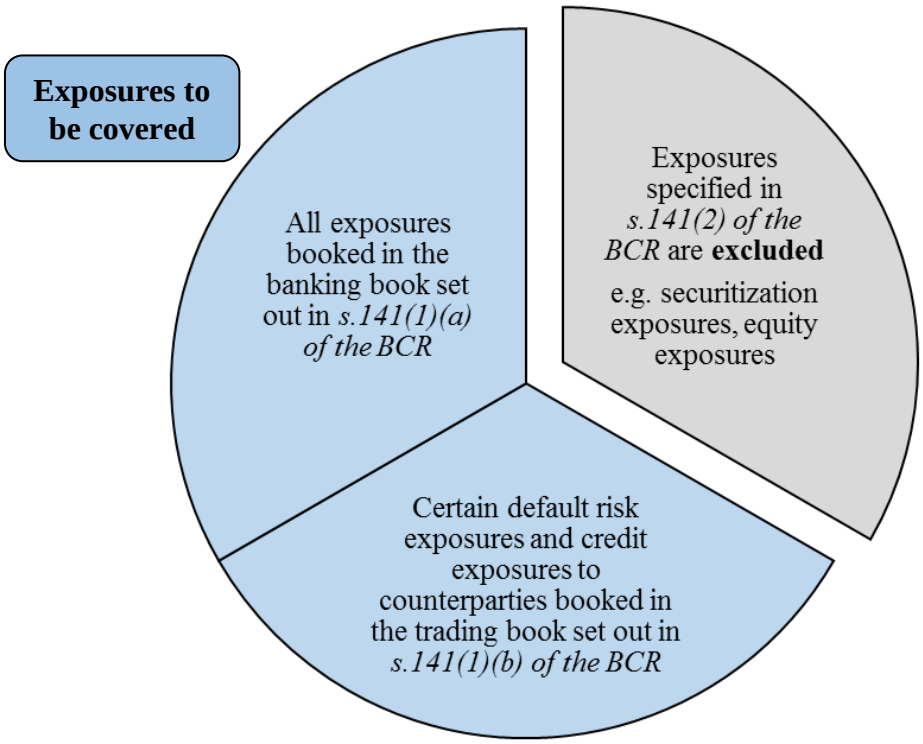
3. Section A gives the general instructions and definitions for the reporting of the IRB return. Section B provides the specific instructions for calculating the ***risk-weighted amount*** for each ***IRB class/subclass*** under the IRB approach. Section C explains the calculation of ***total EL amount*** 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 BCR and the relevant supervisory policy/guidance on the capital adequacy framework.

Section A: General Instructions

I. Scope of the IRB Return

5. A reporting AI is required to report in this return its credit ***exposures*** subject to the IRB approach in accordance with section 141 of the BCR.



6. To avoid doubt, a reporting AI using a combination of the ***standardized (credit risk) approach*** (***STC approach***) and the IRB approach should report those exposures under the STC approach in Form MA(BS)3(IIIb) according to the reporting requirements.

II. Classification of Exposures

7. In reporting the IRB return, the reporting 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 six IRB subclasses as shown in Table 16 to section 142 of the BCR and replicated below in accordance with the definitions given in paragraphs 13 to 21:

IRB Class		IRB Subclass	
1.	Corporate exposures	(1)	Specialized lending (project finance)
		(2)	Specialized lending (object finance)
		(3)	Specialized lending (commodities finance)
		(4)	Specialized lending (income-producing real estate)
		(5)	Specialized lending (high-volatility commercial real estate)
		(6)	Small-and-medium sized corporates
		(7)	Large corporates
		(8)	Financial institutions treated as corporates
		(9)	Other corporates
2.	Sovereign exposures	(10)	Sovereigns
		(11)	Sovereign foreign public sector entities
		(12)	Multilateral development banks
3.	Bank exposures	(13)	Banks (excluding covered bonds)
		(14)	Qualifying non-bank financial institutions
		(15)	Public sector entities (excluding sovereign foreign public sector entities)
		(16)	Unspecified multilateral bodies
		(17)	Covered bonds
4.	Retail exposures	(18)	Small business retail exposures
		(19)	Residential mortgages to individuals
		(20)	Residential mortgages to property-holding shell companies
		(21)	Qualifying revolving retail exposures (transactor)
		(22)	Qualifying revolving retail exposures (revolver)
		(23)	Other retail exposures to individuals
5.	CIS exposures	(24)	CIS exposures

IRB Class		IRB Subclass	
6.	Other exposures	(25)	Cash items
		(26)	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, a reporting AI may use the following IRB calculation approaches (setting out in Table 17 to section 147 of the BCR) for each of the six IRB classes, provided that the relevant criteria and qualifying conditions are met:

IRB class	IRB calculation approaches available
Corporate exposures	Foundation IRB approach
	Advanced IRB approach
	Supervisory slotting criteria approach
Sovereign exposures	Foundation IRB approach
	Advanced IRB approach
Bank exposures	Foundation IRB approach
Retail exposures	Retail IRB approach
CIS exposures	CIS calculation approach
Other exposures	Specific risk-weight 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 a breakdown of the risk-weighted amount for selected types of exposures;

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

and retail exposures under the ***retail 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, a reporting 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 reporting AI adopts for the calculation of ***default risk exposure***s in respect of derivative contracts and SFTs.

12. Where a reporting AI uses more than one ***rating system*** for an IRB class/subclass[1], the institution should split the exposures into portfolios according to the rating systems used and report each portfolio in one Form under Division B (and, where applicable, Division C). In addition, the reporting AI should provide a brief description of the nature of the portfolio under the item "portfolio type" of each separate Form. A reporting 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. A reporting AI should, according to sections 143 and 197 of the BCR, classify each of its exposures to corporates, including purchased corporate receivables, into one of the following IRB subclasses:

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

IRB subclass		BCR reference
(i)	***specialized lending*** (SL) (***project finance***)	Section 143(1), (2), (4A), (4B), (4C) and (6)
(ii)	SL (***object finance***)	
(iii)	SL (***commodities finance***)	
(iv)	SL (***income-producing real estate*****)**	
(v)	SL (high-volatility commercial real estate) (***HVCRE exposures***)	
(vi)	large corporates	Section 143(3A), (3B)
(vii)	***financial institutions treated as corporates***	Section 143(3C)
(viii)	small-and-medium sized corporates (SME corporates)	Section 143(3), (4)
(ix)	other corporates	Section 143(5)

Sovereign Exposures

14. According to section 142 of the BCR, sovereign exposures[2] 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

15. According to section 142 of the BCR, bank exposures include exposures which fall within one of the following IRB subclasses:

(i) banks (excluding ***covered bonds***);

(ii) ***qualifying non-bank financial institutions***;

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

(iv) ***unspecified multilateral bodies***; and

(v) covered bonds.

[2] Holdings of notes and coins should be reported as cash items under the IRB class of other exposures (see paragraph 21).

Retail Exposures

16. In accordance with section 144(1) of the BCR, exposures to individuals which, regardless of exposure size, are managed by the reporting AI on a pooled or portfolio basis should be classified as retail exposures. Retail exposures to individuals usually include ***residential mortgage loans***, revolving credits (e.g. credit cards and overdrafts) and other personal loans (e.g. instalment loans, auto loans, tax loans, personal finance and other retail credits with similar characteristics). For those exposures which are not managed by the reporting AI on a pooled or portfolio basis, an institution should treat them as corporate exposures as per section 144(6) of the BCR.

17. Exposures to corporates may also be classified as retail exposures, provided that the criteria set out in section 144(2) and (3)(b) of the BCR are met.

18. A reporting AI should, in accordance with sections 144 and 197 of the BCR, classify each of its retail exposures, including purchased retail receivables, into one of the following IRB subclasses:

IRB subclass	BCR reference
(i) small business retail exposures	Section 144(2)
(ii) residential mortgages (RM) to individuals	Section 144(3)
(iii) RM to property-holding shell companies	
(iv) qualifying revolving retail exposures (QRRE) (***transactor***)	Section 144(4)
(v) QRRE (revolver)	Section 144(4A)
(vi) other retail exposures to individuals	Section 144(5)

CIS Exposures

19. A reporting 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 BCR.

20. For a CIS exposure constituting a deductible holding that is not deducted from the capital base of the reporting AI under Division 4 of Part 3 of the BCR, the institution must calculate the risk-weighted amount of the exposure in accordance with section 183 of the BCR.

Other Exposures

21. According to section 146 of the BCR, a reporting 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 CIS exposures. These exposures include:

(i) ***cash items***, the types of exposures covered are set out in the table under paragraph 88; 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 90).

(B) Clarification

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

23. A reporting 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 institution 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 institution 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 institution should report the default risk exposures of such transactions after adjusting for the credit risk mitigating effects of any recognized netting.

24. A reporting 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.

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

26. Double counting of exposures arising from the same contract or transaction should be avoided. For example, only the undrawn portion of a loan commitment should be reported as an off-balance sheet exposure while the actual amount drawn should be reported as an on-balance sheet exposure. ***Trade-related contingencies***, such as trust receipts and shipping guarantees, which have already been reported as letters of credit issued or loans against import bills etc. should not be counted again as off-balance sheet exposures.

27. In certain cases, counterparty default risk exposures arising from derivative contracts may already be reflected, in part, on the reporting AI's balance sheet. For example, a reporting AI may have recorded the fair value of a derivative contract on its balance sheet. To avoid double counting, such amount should be excluded from on-balance sheet exposures and treated as off-balance sheet exposures for the purposes of this return.

28. The accrued interest of a credit exposure should form part of the EAD of the credit

exposure. A reporting 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

29. The IRB approach 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.

30. A reporting AI should calculate the risk-weighted amount for the UL of its credit exposures under the IRB approach as follows:

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

(ii) in respect of a CIS exposure not constituting a deductible holding, the institution must calculate its risk-weighted amount in accordance with Part 6B of the BCR;

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

(a) if the institution has an ***IMM(CCR) approval*** [3] for its transactions or contracts, by aggregating -

- the ***IMM(CCR) risk-weighted amount*** of the transactions or contracts concerned that are covered by the IMM(CCR) approval; and
- the sum of the ***SA-CCR risk-weighted amount***[4] or ***SFT risk-weighted amount*** [5] 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 BCR;

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

- the sum of the SA-CCR risk-weighted amount; and
- the SFT risk-weighted amount;

(iv) the institution should aggregate the risk-weighted amount figures derived from items (i), (ii) and (iii) to arrive at the total risk-weighted amount for credit risk under the IRB approach.

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[3] 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 BCR.

[4] 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 BCR.

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

31. For the purposes of paragraph 30(iii), a reporting 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.

32. A reporting 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

33. There are three key elements for the calculation of the 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 a reporting AI, or *supervisory estimates* specified in the BCR;

(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 a reporting AI should meet for the use of the IRB approach[6].

34. A reporting AI should use the risk-weight functions provided in sections 156 and 176 of the BCR 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.

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

(B) Corporate, Sovereign and Bank Exposures

36. Under the foundation IRB approach, section 156(1)(a) of the BCR indicates a reporting 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[7]).

37. Under the advanced IRB approach, a reporting AI should provide its own estimates of PD, LGD and EAD and calculate M according to section 156(1)(b) of the BCR.

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

[7] See footnote 13 for an optional alternative treatment for M.

38. In respect of SL under the supervisory slotting criteria approach, a reporting AI should, in accordance with section 156(1)(c) of the BCR, apply the supervisory estimate of a risk-weight that is applicable to a supervisory rating grade in calculating the risk-weighted amount of such SL.

(C) Retail Exposures

39. Under the ***retail IRB approach***, section 170(1) of the BCR sets out that a reporting 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) CIS Exposures

40. The CIS calculation approach must be used to calculate a reporting AI's risk-weighted amount of CIS exposures.

(E) Other Exposures

41. Under the ***specific risk-weight approach***, a reporting AI should apply a specific risk-weight applicable to an exposure which falls within the IRB subclass of cash items (see paragraph 88) or the IRB subclass of other items (see paragraph 90) in calculating the risk-weighted amount of the exposure according to sections 195 and 196 of the BCR.

III. Specific Requirements for Certain Exposure Portfolios

(A) Purchased Receivables (sections 197 to 200 of the BCR)

42. "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 (whether corporate or retail), a reporting 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 (section 201 of the BCR)

43. 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) (section 202 of the BCR)

44. 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 (section 202A of the BCR)

45. 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 reporting AI's maximum liability under the note (see Part XI of this section).

(E) IPO financing (section 202B of the BCR)

46. A reporting AI may opt to apply section 64A of the BCR to its relevant corporate, bank and retail exposures arising from ***IPO*** financing (pursuant to section 202B of the BCR). 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, the reporting 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

47. 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

48. Subject to paragraph 59, for corporate, sovereign and bank exposures that are not in default, the risk-weighted amount is calculated by Formula 16 to section 156 of the BCR replicated as follows [8], [9]:

Correlation (R)

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

Maturity adjustment (b)

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

[9] 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.

= (0.11852 - 0.05478 × ln (PD))^2

Capital charge factor[10] **(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

49. According to section 156(4) of the BCR, a reporting AI should use the same risk-weight function set out in paragraph 48 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 BCR), 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 institution's best estimate of the EL[11] from the LGD of the defaulted exposure.

(c) SME corporates - Firm-size adjustment

50. For exposures to an SME corporate, a firm-size adjustment (i.e. 0.04 x (1 - (S-50) / 450)) according to section 157(1) of the BCR must be applied to the relevant risk-weight function as set out in paragraph 48 for the calculation of the correlation:

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)

where S is expressed as the total annual sales of the SME corporate (or the consolidated total annual sales of the group of which the SME corporate is a member) in millions of HK$ with the value of S falling within the range from HK$50 million to HK$500 million. Total annual sales 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 sales do not accurately reflect a corporate's scale of business, the MA may, on an exceptional basis, allow a reporting AI to substitute the corporate's total assets for the total annual sales in calculating the firm-size adjustment for the SME corporate in

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

[11] With the prior consent of the MA, a reporting 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 in accordance with section 220(2)(c) of the BCR.

accordance with section 157(4) of the BCR.

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

51. As stated in section 157A(1) and (2) of the BCR, for a reporting 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 institution must multiply the correlation (R) in the risk weight function set out in paragraph 48 by 1.25.

52. To ensure that the information used for determining whether a financial institution is a large regulated financial institution is timely and accurate, the reporting AI should obtain the total assets figures from the most recent audited financial statements of the financial institution or its wider group, as the case requires.

53. For the avoidance of doubt, if an SME corporate that is subject to the firm-size adjustment mentioned in paragraph 50 is also a financial institution to which the asset value correlation multiplier requirements mentioned in paragraph 51 apply, a reporting AI should apply the adjustments mentioned in both paragraphs to the correlation (R) in the risk-weight function set out in paragraph 48 in accordance with section 157(5) of the BCR.

(e) SL

54. The capital treatments set out in this subsection apply to all types of SL unless otherwise specified.

55. Based on section 158(1) of the BCR, a reporting 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 institution can also provide the estimates of other credit risk components) to calculate the risk-weighted amount for such SL, according to the relevant risk-weight functions set out in paragraphs 47 to 53.

56. The use of the foundation IRB approach or the advanced IRB approach by a reporting AI in respect of its HVCRE exposures is subject to the additional requirements set out in section 158(1A), (1B) and (1C) of the BCR.

57. Subject to paragraph 56, a reporting AI may make a firm-size adjustment as described in paragraph 50 to an HVCRE exposure that meets the size criteria for SME corporates.

58. In respect of SL under the supervisory slotting criteria approach, a reporting AI should apply the risk-weight specified in Tables 18 and 18A and section 158(3) and (4) of the BCR for the relevant supervisory rating grade to which a SL is assigned in calculating the risk-weighted amount of that SL.

(f) LSTs arising from derivative contracts and SFTs

59. A reporting 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 BCR. However, the positions of such exposures should still be reported in Form MA(BS)3(IIIc).

(B) Credit Risk Components

***Probability of Default* (PD)**

60. For its corporate, sovereign and bank exposures, a reporting AI should rate on an individual basis each legal entity to which the institution is exposed. In assigning a PD to individual obligors in a connected group, a reporting 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 institution and is thus likely to be more favourable than if the individual obligors were rated on a standalone basis), provided the requirements of section 154(d) of the BCR are met. A reporting 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 institution is exposed.

61. A reporting AI should follow the requirements set out in section 159 of the BCR to determine the PD of its obligor grades, including-

(i) For corporate 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 0.05%.

(ii) 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).

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

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

62. A reporting 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

63. A reporting AI should follow the requirements set out in section 160 of the BCR to determine the LGD applicable to its corporate, sovereign and bank exposures.

BCR reference	Requirements
Section 160(1)	Treatment of exposures which are unsecured or secured by non-recognized collateral and transactions with specific wrong-way risk
Section 160(2), (3), Formula 18 and 19, Table 18B	Treatment of exposures which are secured by a ***recognized collateral*** or more than one recognized collateral and the determination of effective LGD applicable to such exposures

LGD under advanced IRB Approach

64. Except for the exposures specified in paragraph 66, a reporting AI using the advanced IRB approach is allowed to use its own internal estimates of LGD for corporate and sovereign exposures subject to general requirements specified in section 161 of the BCR. The LGD should be measured as a percentage of the EAD.

65. The LGD estimated by a reporting AI must not be less than the LGD floor set out in section 161(1)(ba) to (bd) of the BCR, where applicable[12].

66. For a facility type that comprises default risk exposures in respect of single-name credit default swaps that fall within the description in section 160(1)(c)(i) or (ii) of the BCR or transactions that fall within the description in section 160(1)(d)(i) and (ii) of the BCR, a reporting AI must comply with section 160(1)(c) or (d) of the BCR as if the institution were an institution that uses the foundation IRB approach.

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

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

68. The EAD applicable to a corporate exposure must be not less than the floor set out in section 164(4A) and (4B) of the BCR.

69. In relation to an on-balance sheet exposure, in accordance with sections 163(1) and 164(1) and (4B) of the BCR, a reporting 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 BCR), after taking into account the credit risk mitigating effect of any recognized netting, 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 institution'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 a reporting AI's estimate of EAD in respect of an exposure

[12] The LGD floor does not apply to the portion of a corporate exposure that is covered by a recognized guarantee issued by a sovereign (as per section 164(4C) of the BCR). Furthermore, the existence of the floor does not imply any waiver of the requirements of LGD estimation.

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.

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

***Effective Maturity* (M)**

(a) M under foundation IRB approach

71. In accordance with section 167(1) of the BCR, for a reporting 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[13].

(b) M under advanced IRB approach

72. A reporting AI using the advanced IRB approach for corporate and sovereign exposures is required to calculate M for each exposure in accordance with section 168 of the BCR.

V. Retail Exposures

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

73. In line with section 176 of the BCR, there are three separate risk-weight functions for retail exposures as set out in paragraphs 74 to 76. 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

74. For retail exposures which fall within the IRB subclass of RM to individuals or RM to property-holding shell companies that are not in default (whether secured or partially secured[14]), the risk-weighted amount is calculated by Formula 21 to section 176 of the BCR stipulated as follows:

Correlation (R) = 0.15

[13] Subject to the fulfilment of the notification requirement under section 167(2) of the BCR, a reporting AI using the foundation IRB approach may calculate the M of **all** its corporate, sovereign and bank exposures in accordance with section 168 of the BCR.

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

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 (transactor and revolver)

75. For retail exposures which fall within the IRB subclasses of QRRE (transactor) and QRRE (revolver) that are not in default, the risk-weighted amount is calculated by Formula 22 to section 176 of the BCR stipulated 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

76. For retail exposures which fall within the IRB subclasses of small business retail exposures or other retail exposures to individuals that are not in default, the risk-weighted amount is calculated by Formula 23 to section 176 of the BCR stipulated as below:

Correlation (R)[15]

= 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

(b) Defaulted exposures

77. Corresponding to section 176(5) of the BCR, a reporting AI should use the same risk-weight function set out in paragraph 74, 75 or 76, 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 BCR), except that the capital charge factor (K) for a defaulted retail exposure should be equal to the greater of:

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

(i) zero; or

(ii) the figure resulting from the subtraction of the institution'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)

78. For each pool of retail exposures, a reporting 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 that is not defaulted is the long run average of one-year default rates for obligors which fall within the pool to which the estimate relates, subject to a floor of 0.1% (if it falls within the IRB subclass of QRRE (revolver)) or 0.05% (in any other cases) (per section 177(1)(b) and (ba) of the BCR). The PD of a retail exposure assigned to a pool of retail exposures in default is 100% (per section 177(1)(c) of the BCR).

79. The estimate of LGD of a retail exposure must not be less than the LGD floor set out in section 178(c) to (ce) of the BCR, where applicable[16].

Exposure at Default (EAD)

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

81. The EAD applicable to a retail exposure must not be less than the floor set out in section 164(4A) and (4B) of the BCR, with all necessary modifications, as per section 179 of the BCR.

82. In relation to an on-balance sheet exposure, a reporting AI should, according to sections 164(1) and (4B) of the BCR, 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 BCR), after taking into account the credit risk mitigating effect of any recognized netting, 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 an institution'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 a reporting 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.

[16] The LGD floor does not apply to the portion of a retail exposure that is covered by a recognized guarantee issued by a sovereign (as per section 178(1)(d) of the BCR). Furthermore, the existence of the floor does not imply any waiver of the requirements of LGD estimation.

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.

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

VI. CIS Exposures

84. A reporting AI must determine the risk-weighted amount of a CIS exposure to a collective investment scheme not constituting a deductible holding in accordance with Part 6B of the BCR.

85. A reporting AI which uses the IRB approach to calculate the risk-weighted amount for its CIS exposure[17] should particularly note the specific capital treatments that apply to each individual circumstance by referring to the relevant sections in the BCR 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 BCR	Section 226ZR(3)(a) of the BCR
(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 BCR	Section 226ZR(4)(a), (b)(i)(A) & (ii) and (5) of the BCR
(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 BCR	Section 226ZR(6)(c) of the BCR

[17] This refers to "IRB AI" in Part 6B of the BCR. A reporting AI which uses the IRB approach to calculate its credit risk for some of its non-securitization exposures but uses the STC approach to calculate the risk-weighted amounts of its CIS exposures is classified as an "exempted IRB AI" in Part 6B of the BCR. 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
(d) If it is not feasible for a reporting AI to use the IRB calculation approaches set out in Table 17 of Part 6 or the SEC-IRBA under Part 7 of the BCR, to determine the risk-weighted amount of the underlying exposure	Section 226ZO(7) of the BCR	N/A
(e) If the reporting AI is granted an exemption under section 12(2)(a) of the BCR, 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 BCR	N/A

(ii) when ***third-party approach*** (TPA) is used, the third party should calculate the third-party output in accordance with section 226ZN(2) of the BCR.

86. To avoid doubt,

(i) if a reporting 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 institution, such CIS exposure must continue to be subject to the requirements set out in Division 4 of Part 3 and section 183 of the BCR, where appropriate; and

(ii) if a reporting 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 institution, such CIS exposure must continue to be subject to the requirements set out in Division 4 of Part 3 and section 183 of the BCR, where appropriate.

87. A reporting AI may refer to Part IIIa and IIIb – Annex 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 institution should determine the risk-weighted amount of its CIS exposure constituting deductible holdings and the amount of capital deduction in accordance with section 183 or Division 4 of Part 3 of the BCR.

VII. Other Exposures

(A) Cash Items

88. 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	Definition of "cash items" in section 139(1) of the BCR
1.	**Notes and coins** *This item includes all notes and coins that are the lawful currency of a jurisdiction.*	0%	Paragraph (a)
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%	Paragraph (b)
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 reporting AI or held by another person for the reporting AI on an allocated basis, to the extent backed by gold bullion liabilities. Gold bullion held by the reporting AI for other persons should not be reported.* *Gold bullion held by another person for the reporting AI on an unallocated basis, although backed by the reporting 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%	Paragraph (c)
4.	**Gold bullion held not backed by gold liabilities** *This item includes all gold bullion held by the reporting AI or held by another person for the reporting AI, to the extent not backed by the reporting AI's gold bullion liabilities.*	100%	Paragraph (d)
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 reporting AI immediately upon presentation and that are in the process of collection. Included are cheques and drafts against which the reporting AI has purchased or discounted the cheques presented by its customer and in respect of which the reporting AI is now seeking payment from the drawee bank.* *(b) Unsettled clearing items that are being processed through any interbank clearing*	20% 0%	Paragraphs (e), (f) and (g)

	Cash items	Risk-weight	Definition of "cash items" in section 139(1) of the BCR
	system in Hong Kong and receivables from transactions in securities, 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 reporting 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.*		
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, 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%	Paragraph (h)
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 a reporting 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 reporting 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*	100%	Paragraph (i)

	Cash items	Risk-weight	Definition of "cash items" in section 139(1) of the BCR
	the amount of the payment made or the current market value of the thing delivered by the reporting 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 reporting AI may choose to report such exposures under this item and apply a uniform 100% risk-weight to them in 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, or transactions in foreign exchange and commodities, that have remained unsettled after the contractual date of payment or delivery to the reporting 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 reporting AI, plus any positive current exposure associated with the transactions.*	1250%	Paragraph (j)

89. Unless otherwise specified in Part 6A of the BCR, cash items falling within items 5(b), 6, 7 and 8 of the above table do not apply to repo-style transactions.

(B) Other Items

90. Pursuant to section 196(1) of the BCR, 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 (per section 196(2) of the BCR) if the MA is of the view that a particular exposure item poses a higher risk to the reporting 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 reporting AI which are held for its own use and* a right-of-use asset recognized by the reporting AI as a lessee in accordance with the prevailing accounting standards issued by the Hong Kong Institute of	100% unless otherwise specified by the MA

	Other items	Risk-weight
	Certified Public Accountants where the asset leased is a tangible asset. *Other interests in land which are not occupied or used in the operation of the reporting AI's business should also be reported here.*	
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 CIS 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

91. In accordance with section 197(1) of the BCR, 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 reporting AI can meet the relevant requirements for the use of that particular risk-weight function. For example, if a reporting AI cannot comply with the criteria for QRRE (revolver), the institution should use the risk-weight function for other retail exposures to individuals. Where a reporting AI purchases a hybrid pool of receivables containing a mixture of exposures, the institution 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

92. A reporting AI may use the "top-down" approach for its purchased retail receivables as for other retail exposures (i.e. estimation of credit risk components on a pooled basis) set out in section 198(3) of the BCR, provided that the institution meets the relevant requirements for retail exposures as set out in the BCR, and, in the case of calculation of default risk, it meets the requirements referred to in section 200(d) of the BCR. The reporting 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 institution 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

93. A reporting 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 institution's corporate exposures) set out in section 198(2) of the BCR. In other words, the reporting 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

94. Dilution refers to the possibility that the amount of a receivable is reduced through cash or non-cash credits to the receivable's obligor[18]. A reporting AI must follow the requirements set out in section 199 of the BCR to calculate the risk-weighted amount for dilution risk.

IX. Leasing Transactions

(A) Leases without Residual Value Risk

95. In accordance with section 201(1) of the BCR, exposures arising from leasing arrangements, other than those exposing the reporting AI to residual value risk (see paragraph 96), should be treated as exposures secured by the leased assets. A reporting AI may recognize the credit risk mitigating effect of the leased assets as recognized collateral if the relevant requirements set out in the BCR are met.

(B) Leases with Residual Value Risk

96. Exposures arising from leasing arrangements that expose the reporting AI to residual value risk should be treated in accordance with section 201(2) of the BCR as follows:

(i) risk-weighted amount for default risk – a reporting 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 institution assigns to the exposure); and

(ii) risk-weighted amount for residual value risk – a reporting 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

[18] 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).

97. If the securities underlying the SFTs are ***securitization issues***, the reporting AI should determine the risk-weight attributable to the securities in accordance with Part 7 of the BCR and report the securities in Form MA(BS)3(IIId) accordingly.

98. Subject to paragraph 99, 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 reporting AIs and the associated risk-weighted amount are determined in the following manner:

(i) institutions 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 121 to 124 on the use of the IMM(CCR) approach in respect of derivative contracts apply to SFTs (see also section 202(2) of the BCR);

(ii) institutions 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 of the BCR and report the exposures in Form IRB_OBSD_SFT_N_IMM (see also section 202(1) and (3) of the BCR).

99. Subject to paragraph 100, where a reporting AI applies Division 2 or 2B of Part 6A of the BCR, as the case requires, to an SFT, the institution must determine the risk-weight to be allocated to its exposure under the SFT in accordance with section 202(6) of the BCR.

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

101. The SFT risk-weighted amount of a reporting AI referred to in paragraph 30(iii) is the sum of the default risk risk-weighted amounts for all counterparties to the SFTs of the institution 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 BCR.

XI. Credit-linked Notes (CLNs)

102. A CLN held by the reporting AI 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 institution had a direct exposure to the reference obligation(s), or the risk-weight attributable to the note as set out in section 202A(1) of the BCR. However, a reporting AI is not required to provide regulatory capital for its exposure to a CLN held by it in excess of the institution's maximum liability under the note according to section 202A(2) of the BCR.

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

(A) Classification of Off-balance Sheet Exposures

103. A reporting 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

104. Except as specified in paragraphs 106 and 107, for the calculation of the risk-weighted amount of off-balance sheet exposures, a reporting 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 BCR, as permitted under the BCR, 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.

105. Regarding default risk exposure, this Part mainly illustrates the capital treatments of those derivative contracts using the IMM(CCR) approach or the SA-CCR approach. For specific instructions regarding default risk exposures with respect to SFTs, the reporting AI should refer to paragraph 98(i) for those that are subject to the IMM(CCR) approach, and paragraph 98(ii) for those that are not.

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

107. If a reporting AI issues a CLN to cover a default risk exposure, the amount of the proceeds received from the issuance of the CLN 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 BCR.

108. 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 reporting AI has already held capital against the credit risk of the reference obligations underlying the swaps);

(ii) recognized credit derivative contracts held by the reporting AI as protection buyer in respect of which the credit risk mitigation effects have already been taken into account in accordance with Division 10 of Part 6 of the BCR 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

109. A reporting AI using the foundation IRB approach should classify each of its off-balance sheet exposures (other than default risk exposures) in the banking book as one of the items and apply the CCF listed in Table 20 under section 163(2) and (2AA) of the BCR.

110. A reporting AI using the advanced IRB approach for corporate and sovereign exposures or the retail IRB approach for retail exposures is allowed to provide its own estimates of CCFs for off-balance sheet exposures only if the exposures are revolving in nature and not subject to a CCF of 100% in accordance with section 164(3)(a) and (3A). Otherwise, the reporting AI must apply the CCF listed in Table 20 under section 163(2) and (2AA) of the BCR to determine the EAD of such exposures.

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

112. 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 reporting AI should have sufficient monitoring and management procedures to support this treatment.

113. For retail exposures with an uncertain future drawdown (e.g. credit cards), a reporting AI should take into account the drawdown and repayment history and the expectation of additional drawings by the obligors prior to default in its overall calibration of loss estimates. In particular, where a reporting 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 institution does not incorporate the

possibility of additional drawings in its LGD estimates, it should do so in its EAD estimates.

114. When only the drawn balances of retail facilities have been securitized, a reporting AI should ensure that it continues to hold required capital against the undrawn balances associated with the securitization exposures under the IRB approach for commitment.

(b) Calculation of risk-weighted amount

115. 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

116. A reporting 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 institution 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 BCR.

117. The default risk exposure in respect of a derivative contract should be adjusted for the credit risk mitigating effect of any recognized netting.

118. Where a reporting 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 the amounts of the 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

119. The SA-CCR risk-weighted amount in respect of derivative contracts of a reporting 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 118; 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.

120. For the calculation of the risk-weighted amount for LSTs arising from derivative contracts, a reporting 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

121. A reporting 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.

122. A reporting 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 BCR; 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 BCR.

123. For the calculation of the risk-weighted amounts referred to in paragraph 122(i) and (ii) in respect of LSTs arising from derivative contracts and SFTs, a reporting AI may determine the relevant risk-weight using the STC approach on a permanent basis.

124. The higher of the portfolio-level risk-weighted amount calculated under paragraph 122(i) and (ii) is the ***IMM(CCR) risk-weighted amount*** in respect of the derivative contracts and SFTs of the reporting 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 BCR that give rise to the IMM(CCR) risk-weighted amount (i.e. the higher of the number calculated under paragraph 122(i) and (ii)).

XIII. Credit Risk Mitigation

125. Subject to section 203(1A), (1B) and (2) of the BCR, a reporting AI may take into account the effect of recognized credit risk mitigation in its calculation of risk-weighted amount of exposures in accordance with Division 10 of Part 6 of the BCR, including:

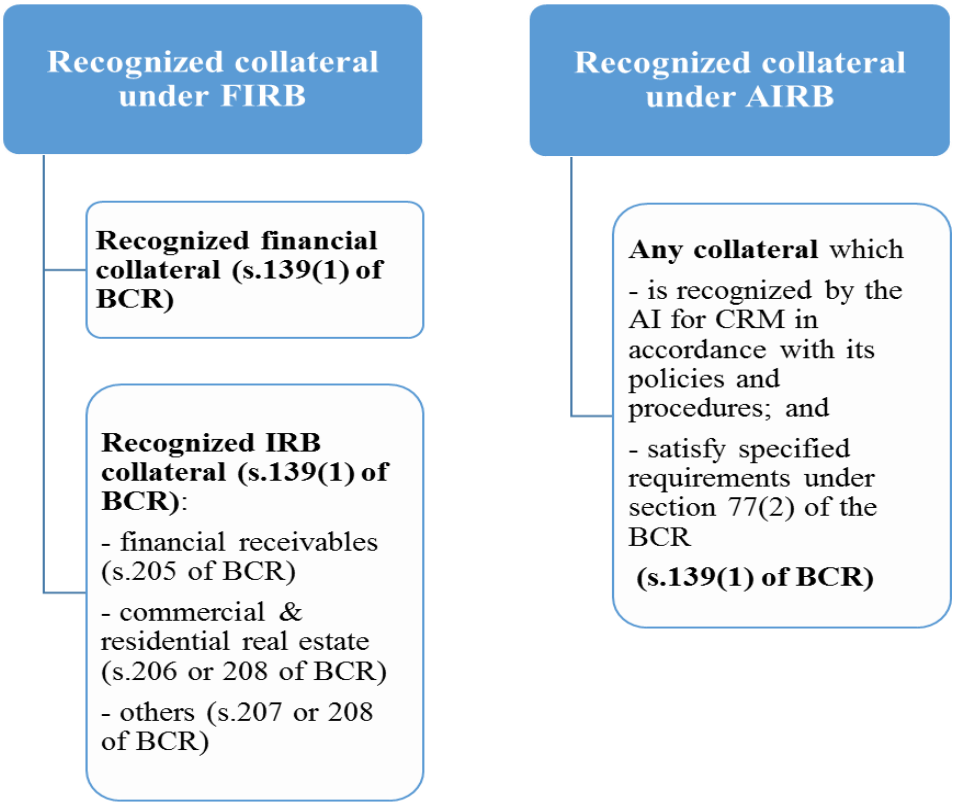
(i) recognized collateral (sections 139, 204 to 208 of the BCR);

(ii) recognized netting (section 209 of the BCR); and

(iii) recognized guarantees and recognized credit derivative contracts (sections 210 to 219 of the BCR).

(A) Capital Treatment of Recognized Collateral

126. Under the IRB approach, collateral is recognized through the determination of LGD for corporate, sovereign, bank and retail exposures in accordance with section 204 of the BCR. The details of the different types of recognized collateral under the foundation IRB approach and the advanced IRB / retail IRB approach are stipulated in sections 139, 204 to 208 of the BCR.



(B) Capital Treatment of Recognized Netting

127. If a reporting AI is entitled pursuant to a valid bilateral netting agreement or valid cross-product netting agreement to net amounts owed by the institution to a counterparty against amounts owed by the counterparty to the institution, the institution may take into account the credit risk mitigating effect of the recognized netting in calculating the EAD of its exposure to the counterparty in accordance with section 209 of the BCR.

128. In respect of on-balance sheet netting for sovereign exposures, the market makers who have short positions in Exchange Fund Bills/Notes may report their net holdings of such

instruments 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 less than one year may be offset with each other;

(ii) the long and short positions of instruments with a residual maturity of not less than one year 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) Capital Treatment of Recognized Guarantees and Recognized Credit Derivative Contracts

129. Under the IRB approach, a reporting 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 in accordance with the BCR provisions set out in the following table:

Exposures	BCR reference
(i) Corporate, sovereign and bank exposures under the foundation IRB approach	Sections 210, 211, 213, 214, 215 and 216
(ii) Corporate and sovereign exposures under the advanced IRB approach	Sections 210, 212, 213, 214, 215 and 217
(iii) Retail exposures under the retail IRB approach	
(iv) Purchased receivables	Sections 210 and 219

Specifically, if a recognized guarantee is provided to a reporting AI or a recognized credit derivative contract is entered into by the institution, and the institution uses the foundation IRB approach to calculate its credit risk for corporate or sovereign exposures to the guarantor or counterparty (where applicable), the institution should allocate to the covered portion of an underlying exposure a relevant risk-weight attributable to that portion of the underlying exposure determined using the foundation IRB approach according to section 217(1A), (1B) and (3A) of the BCR. In the case of an uncovered portion of an underlying exposure, a reporting AI must allocate risk-weight calculated of the underlying exposure (e.g. advanced IRB approach) in accordance with section 217(6) of the BCR.

130. For the substitution framework under the foundation IRB approach, a reporting AI must adjust the amount of the credit protection in accordance with section 216(5) and (6) if

there is a currency mismatch or maturity mismatch between an underlying exposure of the institution and a recognized guarantee or recognized credit derivative contract covering the underlying exposure.

131. Pursuant to section 213(1) of the BCR, an ***internal risk transfer*** used by a reporting AI to transfer the credit risk of one or more credit exposures booked in the institution's banking book to its trading book may be recognized for the purposes of calculating the risk-weighted amount of the protected credit exposure if there is an external hedge that meets all the conditions specified in section 213(2) of the BCR.

132. Where a reporting AI issues a CLN 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.

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

I. Determination of Total EL Amount

133. A reporting AI should sum the EL amount (i.e. EL x EAD) attributed to its corporate, sovereign, bank and retail exposures that are subject to the IRB approach to obtain a ***total EL amount***. Please refer to section 220 of the BCR for details.

134. To determine EL, a reporting AI should follow the requirements set out in

(i) section 220(2) of the BCR for exposure other than SL under supervisory slotting criteria approach, and

(ii) section 220(3) to (5) of the BCR for SL that are under the supervisory slotting criteria approach.

II. Determination of Total Eligible Provisions

135. "Total eligible provisions" is defined as the sum of eligible provisions that are attributed to corporate, sovereign, bank and retail exposures that are subject to the IRB approach, where eligible provisions means the sum of the reporting 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 69 and 82 on the aforesaid IRB exposures that are in default (see section 139(1) of the BCR).

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

136. A reporting 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 99 and 100), with elaborations on apportionment method in paragraphs 137 and 138.

137. A reporting 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 exposures to CCPs calculated under Part 6A of the BCR). However, with the prior consent of the MA under section 42(2)(b) of the BCR, a reporting 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 reporting 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.

138. The MA may, on a case-by-case basis, consider whether there are particular circumstances that justify a reporting 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. The reporting 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

139. A reporting AI using the IRB approach should compare the amount of total eligible provisions with the total EL amount in accordance with section 220(1) of the BCR.

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

141. Where the total EL amount is less than the total eligible provisions, the reporting 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 exposures to CCPs calculated under Part 6A of the BCR).

Section D: Specific Instructions

FORM: IRB_TOTCRWA

142. This Form gives a summary of a reporting AI's risk-weighted amount by IRB class/subclass calculated under the IRB approach.

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. For example, under item 4, if a reporting AI reports one Form for RM to individuals, two Forms for QRRE (transactor) and two Forms for other retail exposures to individuals, the institution should report in column (1):

- for item 4(a)(i): (1) Form IRB_RETAIL
- for item 4(b): (2) Form IRB_RETAIL
- for item 4(e): (2) Form IRB_RETAIL

Risk-weighted amount (Columns (2) to (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)

This is the sum of items 1 to 6. This is also the figure reported in item 2.3 of Division A of Form MA(BS)3(I).

Report the breakdown of the following three items:

- item 7(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 7(b): the risk-weighted amount of default risk exposures in respect of derivative contracts and SFTs that are subject to the IMM(CCR) approach.
- item 7(c): the risk-weighted amount of exposures to financial institutions that are subject to the asset value correlation multiplier.

FORM: IRB_CSB

143. 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[19]). In each reporting Form, a reporting 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)	Obligor grade A reporting 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 rating systems. The reporting 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, a reporting AI should report every obligor grade within its rating systems in each Form even though there is no exposure falling within a particular obligor grade.
Columns (3), (4) & (5)	PD range A reporting 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 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 0.05%. For defaulted exposures, report 100% as the average PD for corporate, sovereign and bank exposures. 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 except for the otherwise caused by the PD floor mentioned above. Where a reporting AI uses a single PD estimate for each obligor grade (i.e. no PD range), the institution 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 a reporting 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:

[19] To avoid doubt, this means that a reporting AI should capture its SL 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

- 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)

A reporting 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.

(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 or the PD estimate determined according to section 216(3)(b) of the BCR (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;

Item	Nature of item

- 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.

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 (13) of Form IRB_FIRBLGD or column (19) of Form IRB_AIRBLGD, where applicable.

Column (14) Exposure weighted average maturity value

M is reported in years.

$$\text{Exposure weighted average maturity value} = \sum_i M_i \times \text{EAD}_i \; / \; \sum_i \text{EAD}_i$$

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 (17) Risk-weighted amount

Calculate the risk-weighted amount of each exposure and report the sum of risk-weighted amount (including the risk-weighted amount for dilution risk and residual value risk, where applicable) for each obligor grade under column (15).

Item	Nature of item
	Report under column (16) the risk-weighted amount for dilution risk for purchased receivables. Report under column (17) the risk-weighted amount for residual value risk for leasing transactions.
Columns (18) & (19)	Memorandum items Report under column (18) the sum of the ***expected loss amount*** of exposures for each obligor grade. Report under column (19) 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 (19)	Exposures subject to asset value correlation multiplier Report under columns (6) to (12) and (15) to (19) the reporting AI's exposures to financial institutions that are subject to the asset value correlation multiplier.

FORM: IRB_SLSLOT

144. This Form is used for reporting SL under supervisory slotting criteria approach. In each reporting Form, a reporting AI should specify the SL subclass for which the Form is completed.

Item	Nature of item
Columns (1) & (2)	Supervisory rating grades / supervisory risk-weights A reporting 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.

Item | Nature of item

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)

A reporting 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 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

Item	Nature of item
	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). 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

145. This Form is used for reporting the different IRB subclasses of retail exposures. In each reporting Form, a reporting 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)	Pool

Item	Nature of item
	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, a reporting 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 A reporting 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 0.1% for qualifying revolving retail exposures (revolver) or 0.05% otherwise. 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 except for the otherwise caused by the PD floor mentioned above. Where a reporting 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 a reporting 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) A reporting 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.

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

FORM: IRB_CIS

146. 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[20].

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_OTHER

147. 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 A reporting AI is required to report any cash item listed in the table under paragraph 88. Other items A reporting AI is required to report any other item listed in the table under paragraph 90. The reporting AI should provide a brief description of other items that are not specifically identified elsewhere in this return.
Columns (3) & (4)	EAD calculation A reporting 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

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

- the deductible holding which is an equity exposure that falls within section 54A of the BCR should be reported in Form MA(BS)3(IIIb) if the deductible holding is risk-weighted in accordance with Part 4 of the BCR; or
- in any other case, the deductible holding should be reported in Form IRB_CSB if the deductible holding is risk-weighted in accordance with Part 6 of the BCR.

Item	Nature of item
	This is calculated as follows: EAD (column (4)) x SRW (column (2)).

FORM: IRB_FIRBLGD

148. 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), a reporting AI should file a corresponding Form under IRB_FIRBLGD.

149. In each reporting Form of IRB_FIRBLGD, a reporting 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 (12)	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): Unsecured senior exposures (LGD: 40%) Column (8): Other recognized IRB collateral (LGD: 25%) Column (9): Recognized commercial real estate (LGD: 20%) Column (10): Recognized residential real estate (LGD: 20%) Column (11): Recognized financial receivables (LGD: 20%) Column (12): Recognized financial collateral (LGD: 0%)

Item	Nature of item
	Report the full amount of EAD under - column (4) if the exposure falls within section 226J(3) and (4) of the BCR i.e. it is an exposure with specific wrong-way risk, - column (5) if the exposure is a **subordinated exposure** that is not captured under column (4), - column (6) if the exposure is an **unsecured senior exposure** that is a sovereign exposure, a bank exposure or an exposure to financial institution treated as corporate and is not captured under column (4), - column (7) if the exposure is an **unsecured senior exposure** that is not captured under column (4) or (6). If a senior exposure is collateralized by **other recognized IRB collateral, recognized commercial real estate**, **recognized residential real estate**, **recognized financial receivables** or **recognized financial collateral** (including gold), then the reporting AI should enter the collateralized portion after the haircut adjustments in column (8), (9), (10), (11) or (12) respectively. The unsecured portion should be reported in column (4), (6) or (7).
Column (13)	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

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

151. In each reporting Form of IRB_AIRBLGD, a reporting 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

Item	Nature of item
	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. A reporting 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.
	Selected breakdown of exposures **(not applicable to sovereign exposures)**
Columns (A), (A1) to (A3)	EAD of exposures where the estimated LGD is lower than the LGD floor as set out in section 161 of the BCR Among the exposures reported above, report the EAD of exposures where the estimated LGD is lower than the LGD floor as required in the BCR. Report the EAD of the exposures in columns (A1), (A2) and (A3) if the estimated LGDs of the exposures are lower than the LGD floors by - less than 5%, - between 5% and 10%, and - more than 10% respectively. Report the sum of EADs reported in columns (A1) to (A3) in column (A) in the same row.

FORM: IRB_RETAILIRBLGD

152. This Form is used for reporting the LGD information for retail exposures under the retail IRB approach. For each Form (IRB_RETAIL) reported under Division B for retail exposures, a reporting AI should file a corresponding Form under IRB_RETAILIRBLGD.

153. In each reporting Form of IRB_RETAILIRBLGD, a reporting AI should state the IRB 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)	Pool

Item	Nature of item
& (2)	Report the average PD for exposures assigned to each pool of retail exposures. The number of pools of exposures and the average PD figures reported should be the same as those reported in column (5) of Form IRB_RETAIL for that particular IRB subclass/portfolio type.
Column (3)	EAD Report the sum of EAD for exposures of each pool. These figures should be the same as those reported under column (12) of Form IRB_RETAIL for that particular IRB subclass/portfolio type.
Column (4)	LGD Report the LGD for exposures of each pool. These figures should be the same as those reported under column (13) of Form IRB_RETAIL for that particular IRB subclass/portfolio type.
	Selected breakdown of exposures
Columns (A), (A1) to (A3)	EAD of exposures where the estimated LGD is lower than the LGD floor as set out in section 178 of the BCR Among the exposures reported above, report the EAD of exposures where the estimated LGD is lower than the LGD floor as required in the BCR. Report the EAD of the exposures in columns (A1), (A2) and (A3) if the estimated LGDs of the exposures are lower than the LGD floors by - less than 5%, - between 5% and 10%, and - more than 10% respectively. Report the sum of EADs reported in columns (A1) to (A3) in column (A) in the same row.

FORM: IRB_OBSND

154. 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, a reporting 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 15	Off-balance sheet exposures (Other than Default Risk Exposures in respect of derivative contracts and SFTs) A reporting AI is required to report in items 1 to 15 each of its off-balance

Item	Nature of item
	sheet exposures other than default risk exposures in respect of derivative contracts and SFTs as listed in Table 20 to section 163 of the BCR[21].
	Exposures reported in item 15 may include the credit exposures to persons holding collateral posted by the reporting AI (other than collateral posted for centrally cleared trades and held by CCPs) in a manner that is not bankruptcy remote from the persons.
	A reporting 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 reporting AI is also required to estimate CCFs for those types without prescribed CCFs. For such types of off-balance sheet exposures, the institution 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 15.
	Report in item D_T the sum of the credit equivalent amount (after recognized guarantees/credit derivative contracts) reported in items 1 to 15.

FORM: IRB_OBSD_SACCR

155. This Form is used for reporting the breakdown of the default risk exposures of derivative contracts[22] 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
	A reporting 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.

[21] A reporting AI using the advanced IRB approach can use its own estimate of CCF to calculate the credit equivalent amount of the exposure only if the exposure is revolving in nature and is not subject to a CCF of 100% in Table 20 to section 163 of the BCR.

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

Item	Nature of item
Table	Nature of item

(A1) Unmargined contracts not subject to recognized netting

A reporting AI is required to report in Table (A1) derivative contracts (a) that fall within the definition of unmargined contract in section 226BA of the BCR; and (b) that are not subject to recognized netting. Contracts that fall within section 226BH(2) or (4) of the BCR and contracts that have been removed from the netting sets concerned under section 226BH(3)(b) or (5) of the BCR 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 BCR 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 section 226BH(2) or (3) of the BCR, 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 BCR 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 BCR).

If more than one derivative contract is covered by a single variation margin agreement,

(i) report the stated notional amount of each of the derivative contracts in items (1a), (2a), (3a), (4a) or (5a), as the case requires; and

(ii) 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.

Item	Nature of item
(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. 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 reporting AI with clearing members or clearing clients.

FORM: IRB_OBSD_SFT_N_IMM

156. This Form is used for reporting the breakdown of the default risk exposures of SFTs[23] (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 A reporting 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 BCR.
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 BCR.
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 reporting AI with clearing members or

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

Item	Nature of item
	clearing clients.

FORM: IRB_OBSD_IMM

157. This Form is used for reporting the breakdown of the default risk exposures of derivative contracts[24] and SFTs[25] (including centrally cleared trades that are treated as bilateral trades) for corporate, sovereign, bank and retail exposures under the IMM(CCR) approach. A reporting AI should refer to paragraphs 98(i) and 121 to 124 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 122(i) and (ii).

Item	Nature of item
Items 1 to 7	Derivative contracts and SFTs A reporting 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. Reporting 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 BCR, 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 BCR should be reported in items 4 to 7 as appropriate. A reporting 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	Total default risk exposures
B(ii) & B(iii)	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 reporting AI with clearing members or

[24] Refer to footnote 22.
[25] Refer to footnote 23.

Item	Nature of item
	clearing clients.

FORM: IRB_ELEP

158. 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 determination of capital base.

Item	Nature of item
Items 1 to 4	Corporate, sovereign, bank and retail exposures A reporting 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 a reporting AI's CET1 capital, in accordance with section 43(1)(i) of the BCR (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 7 of Form IRB_TOTCRWA) and then the lower amount is reported in item 9. This figure will be added to a reporting AI's Tier 2 capital (see Form MA(BS)3(II)).

Hong Kong Monetary Authority
March 2025

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 sales = HK$50 Mn)

Grade	Non-defaulted (P) / Defaulted (D)	PD	IRB Risk-Weight (RW)			
			LGD: 75%	LGD:45%	LGD:40%	LGD:35%
1	P	0.05%	25.66%	15.40%	13.69%	11.97%
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	0.05%	32.75%	19.65%	17.47%	15.28%
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 sales = 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 = 40%
- RW = 114.17%
- 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 1.1417

= HK$102.753 Mn

(d) EL-eligible provisions calculation:

(1) EL amount

= EAD x PD x LGD

= HK$90 Mn x 0.03 x 0.40

= HK$1.08 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

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%
- Haircut for recognized IRB collateral = 40%
- 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) Determination of effective LGD (LGD*):

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

(2) Portion fully secured by other recognized IRB collateral ($E_{S,2}$):
= C x (1 - H_c - H_{fx})
= HK$50 Mn x (1 - 0.4 - 0)
= HK$30 Mn ($LGD_{S,2}$ = 25%)

(3) Unsecured portion (E_U):
= HK$100 Mn - HK$35.2 Mn - HK$30 Mn
= HK$34.8 Mn ($LGD_U$ = 45%)

(4) Effective LGD:

$$LGD^* = 45\% \times \frac{34.8}{100} + 0\% \times \frac{35.2}{100} + 25\% \times \frac{30}{100} = 23.16\%$$

(The corresponding RW is 54.35% with PD = 1.5% and LGD = 23.16%)

(f) Risk-weighted amount of the exposure to Central Bank E
= EAD x RW
= HK$100 Mn x 0.5435
= HK$54.35 Mn

(g) EL-eligible provisions calculation:

(1) EL amount
= EAD x PD x LGD
= HK$100 Mn x 0.015 x 0.2316
= HK$0.347 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 = 35%

Workings:

- Estimated PD (grade 8) for Corporate F = 100%
- LGD = 40%

(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
= (40% - 35%) x 12.5 x HK$100 Mn
= HK$62.5 Mn

(c) EL-eligible provisions calculation:

(1) EL amount
= EL x EAD
= 0.35 x HK$100 Mn
= HK$35 Mn

(2) Eligible provisions = HK$40 Mn

(B) Retail Exposures

(v) Example 5 (QRRE (revolver))

Within the exposure subclass of QRRE (revolver), 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 50%, 60%, 85% and 100%.

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

Pool	Non-defaulted (P) / Defaulted (D)	PD	IRB Risk Weight (RW)		
			LGD: 85%	LGD:60%	LGD:50%
1	P	0.10%	5.12%	3.61%	3.01%
2	P	0.25%	10.88%	7.68%	6.40%

Pool	Non-defaulted (P) / Defaulted (D)	PD	IRB Risk Weight (RW)		
			LGD: 85%	LGD:60%	LGD:50%
3	**P**	0.75%	26.06%	18.40%	15.33%
4	**P**	3.00%	73.03%	51.55%	42.96%
5	**P**	6.00%	116.37%	82.14%	68.45%
6	**P**	15.00%	196.23%	138.51%	115.43%
7	**D**	100.00%	-	-	-

Bank XYZ has granted an unsecured revolving loan facility of HK$1 Mn to Mr. G, of which HK$0.8 Mn has been drawn down and is outstanding. The exposure to Mr. G 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 10%
- Estimated PD (grade 3) for Mr. G = 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 10%
= HK$0.02 Mn

(b) Risk-weighted amount of the exposure to Mr. G:
$= (EAD \times RW)_{on\text{-}balance} + (EAD \times RW)_{off\text{-}balance}$
= HK$0.8 Mn x 0.184 + HK$0.02 Mn x 0.184
= HK$0.151 Mn

(c) EL-eligible provisions calculation:

(1) EL amount
$= (EAD \times PD \times LGD)_{on\text{-}balance} + (EAD \times PD \times LGD)_{off\text{-}balance}$
= HK$0.8 Mn x 0.0075 x 0.6 + HK$0.02 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 Reported
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) Large corporates • Corporate exposures: (iv) Financial institutions treated as corporates • Corporate exposures: (v) Specialized Lending (project finance) • Corporate exposures: (vi) Specialized Lending (object finance) • Corporate exposures: (vii) Specialized Lending (commodities finance) • Corporate exposures: (viii) Specialized Lending (income-producing real estate) • Corporate exposures: (ix) 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 (excluding covered bonds) • Bank exposures: (ii) Qualifying non-bank financial institutions • Bank exposures: (iii) Public sector entities (excluding sovereign foreign public sector entities) • Bank exposures: (iv) Covered bonds • Bank exposures: (v) Unspecified multilateral bodies
	IRB_SLSLOT	For each of the following IRB subclasses where supervisory slotting criteria approach is applicable: • Corporate exposures: (i) Specialized Lending (project finance) • Corporate exposures: (ii) Specialized Lending (object finance) • Corporate exposures: (iii) Specialized Lending (commodities finance) • Corporate exposures: (iv) Specialized Lending (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 (transactor) • Retail exposures: (iv) Qualifying revolving retail exposures (revolver) • Retail exposures: (v) Small business retail exposures • Retail exposures: (vi) Other retail exposures to individuals

Division	Template	IRB Class/Subclass To Be Reported
	IRB_CIS	CIS exposures: CIS exposures
	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 exposures reported under AIRB approach in Division B
	IRB_RETAILIRBLGD	For each of the IRB subclasses for retail exposures reported under retail IRB 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 (Transactor or Revolver)	
LGD:	40%	40%	45%	25%	45%	85%	50%	85%
Maturity 2.5 years								
Annual revenue (HK$ Mn)	500	50						
PD: 0.05%	17.47%	13.69%	6.23%	3.46%	6.63%	12.52%	1.68%	2.86%
0.10%	26.36%	20.71%	10.69%	5.94%	11.16%	21.08%	3.01%	5.12%
0.25%	43.97%	34.68%	21.30%	11.83%	21.15%	39.96%	6.40%	10.88%
0.40%	55.75%	43.99%	29.94%	16.64%	28.42%	53.69%	9.34%	15.88%
0.50%	61.88%	48.81%	35.08%	19.49%	32.36%	61.13%	11.16%	18.97%
0.75%	73.58%	57.91%	46.46%	25.81%	40.10%	75.74%	15.33%	26.06%
1.00%	82.06%	64.35%	56.40%	31.33%	45.77%	86.46%	19.14%	32.53%
1.30%	89.73%	70.02%	67.00%	37.22%	50.80%	95.95%	23.35%	39.70%
1.50%	93.86%	72.99%	73.45%	40.80%	53.37%	100.81%	25.99%	44.19%
2.00%	102.09%	78.71%	87.94%	48.85%	57.99%	109.53%	32.14%	54.63%
2.50%	108.58%	83.05%	100.64%	55.91%	60.90%	115.03%	37.75%	64.18%
3.00%	114.17%	86.74%	111.99%	62.22%	62.79%	118.61%	42.96%	73.03%
4.00%	124.07%	93.37%	131.63%	73.13%	65.01%	122.80%	52.4%	89.08%
5.00%	133.20%	99.79%	148.22%	82.35%	66.42%	125.45%	60.83%	103.41%
6.00%	141.88%	106.21%	162.52%	90.29%	67.73%	127.94%	68.45%	116.37%
10.00%	171.63%	130.23%	204.41%	113.56%	75.54%	142.69%	93.21%	158.47%
15.00%	196.92%	152.81%	235.72%	130.96%	88.60%	167.36%	115.43%	196.23%
20.00%	211.76%	167.48%	253.12%	140.62%	100.28%	189.41%	131.09%	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 sales 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 sales of the corporate receiving the exposure is assumed to be HK$50 million.