IV. IRB Approach[1]

1. ***Application and adoption***

Application for approval to use IRB approach

Q1.	**Suppose an AI uses the foundation IRB approach for its exposures in the IRB adoption classes of corporate—other than specialized lending, sovereign and bank. Can the institution switch to using the STC approach for its sovereign exposures? If yes, is consent from the MA required for the switch?**
A1.	Under §8(4)(a), when an AI is granted approval under §8(2)(a) to use the IRB approach for one or more than one IRB adoption class to calculate its credit risk for non-securitization exposures, the institution shall not, except with the prior consent of the MA, use any approach other than the IRB approach to calculate its credit risk for non-securitization exposures within the IRB adoption class for which an approval is granted to use the IRB approach. Accordingly, the switching to the STC approach must be justified (e.g. changes in group-wide regulatory reporting strategy against revisions of the requirements of the supervisory authority of the institution's parent bank) and demonstrated not for regulatory capital arbitrage. The above principle also applies to the applications for switching from other IRB calculation approaches to the STC approach.

Adoption of IRB approach

Q2.	**What is the expected content of an implementation plan under §11(1)(a)?**
A2.	The implementation plan under §11(1)(a) must specify to what extent and when an AI intends to use the IRB approach to calculate its credit risk for non-securitization exposure. It is thus expected that the plan in general includes— (a) the IRB adoption class(es) which is/are the subject of the application and the respective IRB calculation approach chosen to be used (e.g. foundation IRB approach or advanced IRB approach in case of the IRB adoption class of sovereign); (b) the expected commencement date for using the IRB approach for each IRB adoption class subject to the application; and (c) in case of a phased rollout within an IRB adoption class, the details of the planned rollout (see also A3 below).

[1] This chapter is currently under revision, primarily to accommodate the review of the SPM module CA-G-4 on "*Validating Risk Rating Systems under the IRB Approach*". Please refer to the HKMA's letters to the HKAB and the DTC Association dated 29 November 2024, available on the HKMA's public website (https://www.hkma.gov.hk/eng/regulatory-resources/consultations/) and the private website (http://www.stet.iclnet.hk/index.htm).

	When submitting an implementation plan, the institution should also supplement comprehensive information useful for assessing its application. Such information is expected to be usually contained in its internal project plan, for example, but not limited to— (a) the organisational structure delineating the business lines, risk management and other functional units' authorities and duties in the governance, developments and operations concerning the implementation of the IRB approach; (b) a gap analysis of the latest status of compliance with the applicable regulatory requirements; (c) a description of each rating system under the initial implementation or that is to be developed; (d) the details of intragroup arrangement (e.g. rating system development and validation, etc.) in cases where the institution is a subsidiary of a non-Hong Kong banking group and certain operations concerning the rating systems are performed by the associated entities of the banking group; and (e) any other information that the institution considers appropriate to be included in the plan.
Q3.	**Is phased rollout for exposures falling within an IRB adoption class allowed when an AI applies the IRB approach to calculate its credit risk for non-securitization exposures?**
A3.	A phased rollout is generally not expected for exposures falling within an IRB adoption class, and an AI should ensure comprehensive readiness within that IRB adoption class (including a credible track record of at least 3 years using its rating system before the institution becomes qualified to use the relevant IRB approach). Phased rollout within an IRB adoption class may only be considered under exceptional circumstances with strong justifications, for example – (a) the formal adoption of rating systems to certain exposures within an IRB adoption class is subject to events not controlled by the institution (e.g. decisions made by home and host supervisors concerning a rating system for certain exposures within an IRB adoption class), (b) it is impracticable to roll out the IRB approach to a business unit of the institution located outside Hong Kong subject to specific local legal or regulatory restrictions (e.g. transfer of data concerning obligors); (c) the structure of the institution is complicated such that it is impracticable to roll out the IRB approach in one go. To avoid doubt, there is no supervisory expectation that AIs commence to use the IRB approach across IRB adoption classes simultaneously.

Exemption for exposures and revocation of such exemption

Q4.	**What factors will the MA consider in determining an AI's application for exempting a subset of exposures in an IRB adoption class or the exposures falling within a business unit from the use of the IRB approach?**
A4.	In determining such an application from an AI, the MA will consider the following factors— (a) Practicality (re: §12(2)(a)(iii)) – whether the institution has genuine difficulty in applying the IRB approach to the exposures which are the subject of the application, due to practical reasons after taking into account the nature and complexity of the exposures (e.g. lack of data). The MA has no intention of exempting any exposures if the institution clearly has the ability to apply the IRB approach to such exposures without incurring significant cost or effort; and (b) Regulatory capital arbitrage (re: §12(2)(a)(iv)) – whether the exemption will materially prejudice the calculation of the institution's regulatory capital for credit risk (e.g. because the requirement of the institution's regulatory capital is artificially lowered by the institution selectively choosing a certain approach or method for certain of its exposures). In relation to the foregoing, the HKMA expects that in most cases, only immaterial exposures in terms of size and perceived risk profile within the IRB adoption class could justify that it is not practical for the institution to include such exposures in the calculation of credit risk under the IRB approach, and ensure that the exemption, if granted, would not materially prejudice the calculation of the institution's regulatory capital for credit risk. In general, the aggregate risk-weighted amount of the non-securitization exposures to which the exemption would relate is not expected to exceed 10% of an institution's risk-weighted amount for credit risk (i.e. an indicative size reference level of 10%).
Q5.	**Will the MA approve an AI to exclude from the IRB calculation only some exposures within a business unit?**
A5.	No. As a general rule, the MA will only exempt exposures within a business unit from the IRB calculation in their entirety. When an AI uses the IRB approach in respect of a particular business unit, the institution should apply the IRB approach to all exposures within the IRB adoption classes approved to use the IRB approach that falls within that business unit. In this connection, when an AI applies for exempting exposures within a business unit, the institution should define the boundary of the concerned business unit in the application in a manner consistent with its business and management structure. Examples of a business unit may include a subsidiary, a branch outside Hong Kong, or a division of an AI.
Q6.	**Is an exemption granted by the MA under §12 a permanent one?**

A6.	No. When the exemption granted in respect of a subset of exposures in an IRB adoption class or the exposures falling within a business unit under §12 becomes unsubstantiated (see A4 above for the factors relevant to the determination of a §12 application), the MA may take one or more of the actions set out in §13(2), including revocation of the exemption granted.

2. ***Classification of exposures***

General

Q7.	**The reported figures of annual sales, annual revenue and total assets of a company or a group of companies of which a company concerned is a member (a "group") in its "latest annual financial statement" are required for classification and credit risk calculation under the IRB approach (see for example, §§143(3) and (3A) and 157A(3)). Must an AI use the audited financial statements to determine the value thresholds? In addition, companies often take time to prepare financial statements. What is the supervisory expectation regarding their timeliness?**
A7.	Under §143(3A), the annual financial figures of a company or a group in a financial year ("financial figures") must be ascertained through the audited financial report for the classification of *large corporate* exposures. The same applies to identifying *large regulated financial institutions* defined under §157A(3). Regarding the classification of *small-and-medium sized corporate* exposures and *small business retail exposures*, the HKMA has the same expectation as that provided in A28 to A31 of Chapter III STC approach for the classification of "small business" under the STC approach. Therefore, among others, an AI should ascertain the financial figures through the audited financial report to the extent feasible. Where the updated audited financial report is unavailable (e.g. sole proprietorships where statutory audit is not mandatory) or yet to be available, other reliable information for that year (e.g. the company's internal report or transaction/payment data or those obtained through Commercial Data Interchange) may be used with any necessary adjustments (e.g. elimination of intra-group transactions).
Q8.	**Must an AI use the $500 million threshold to classify its corporate exposures under the IRB subclass of *small-and-medium sized corporates*? What would be the case for the value thresholds for the classification of *small business retail exposures* and *large corporates*?**
A8.	Under §143(3), an AI may classify an exposure to a corporate that falls within the description therein as a corporate exposure within the IRB subclass of *small-and-medium sized corporates*. For this, the institution may opt for a threshold consistent with its risk management practice, which however must be below $500 million.

	Similar flexibility is also available to the institution with respect to the $10 million threshold set out in §144(2) for classifying *small business retail exposures*. Regarding the $5 billion threshold for classifying an AI's exposures under *large corporates* pursuant to §143(3A), the institution must adopt this value threshold. It is also worth noting that under §143(4C), an AI must classify its exposures that fall within the description in §143(3C) as exposures falling within the IRB subclass of *financial institutions treated as corporates* regardless these exposures may also fall within the IRB subclass of *small-and-medium sized corporates* or *large corporates*.

Corporate exposures – specialized lending

Q9.	**Under which IRB subclass should an AI classify its specialized lending if the institution is able to estimate the credit risk components of such specialized lending for the purpose of using the foundation IRB approach or the advanced IRB approach?**
A9.	An AI must classify all of its specialized lending under the five IRB subclasses of the specialized lending (project finance / object finance / commodities finance / income-producing real estate / high-volatility commercial real estate), as the case requires, regardless of whether the institution uses the supervisory slotting criteria approach, the foundation IRB approach or the advanced IRB approach to calculate the risk-weighted amount of its specialized lending.
Q10.	**Is there any guidance on classifying exposures into each subclass of specialized lending in addition to paragraphs (a) to (e) of §143(1)?**
A10.	The definition of "specialized lending" and the definitions of the five subclasses of specialized lending, namely project finance, object finance, commodities finance, income-producing real estate and high-volatility commercial real estate are set out in §139(1) and paragraphs (a) to (e) of §143(1) respectively. For further guidance, an AI should refer to (i) Q34 to Q40 in Chapter III STC approach and (ii) Basel Framework CRE30.8 to CRE30.16.

Corporate exposures – small-and-medium sized corporates

Q11.	**What circumstances are expected to be justifiable for an AI to substitute a corporate's total assets for total annual sales for §143(4) concerning the classification of *small-and-medium sized corporates*?**
A11.	These would be the cases where a corporate's scale of business is not accurately reflected by the corporate's total annual sales, such as the corporate's annual sales including a significant amount generated by an exceptional, non-recurring transaction, or includes a significant amount of off-shore sales which has been booked through the corporate for tax planning purposes.

Corporate exposures – financial institutions treated as corporates

Q12.	**Guidance is sought on the scope of exposures to be classified under the IRB subclass of *financial institutions treated as corporates*.**
A12.	Any financial institutions as defined under §139(1) that do not fall within the five IRB subclasses of bank exposures (viz. *banks (excluding covered bonds), qualifying non-bank financial institutions, public sector entities (excluding sovereign foreign public sector entities), unspecified multilateral bodies* and *covered bonds*) should be classified under the IRB subclass of *financial institutions treated as corporates*.[2]

Retail exposures

Q13.	**Is there any limit on the size of an exposure qualified as a retail exposure?**
A13.	Size limits are specified in §144(2) for the IRB subclass of *small business retail exposures* and §144(4) and (4A) for the IRB subclasses of *qualifying revolving retail exposures (transactor)* or *qualifying revolving retail exposures (revolver)*. There is no size limit, however, for an exposure to qualify for inclusion in the other IRB subclasses for retail exposures.
Q14.	**Where a retail borrower has a credit card facility and a revolving personal overdraft facility with an AI, does the institution need to add up both facilities to determine whether the aggregate amount of the two facilities is within the limit of $1 million as specified in §144(4) and/or (4A) such that both facilities can be classified under the IRB subclass of *qualifying revolving retail exposures (transactor)* or *qualifying revolving retail exposures (revolver)*?**
A14.	No. In determining whether an exposure falls within the IRB subclass of *qualifying revolving retail exposures (transactor)*[3] or *qualifying revolving retail exposures (revolver)*, an AI is only expected to apply the $1 million limit mentioned above on a facility basis, rather than on an obligor basis. To avoid doubt, the limit is intended to be applied at the facility level from the perspective of management, i.e. the exposures of several facilities of the same product type should be aggregated if the concerned facilities are managed as if they were one facility. Otherwise, it is acceptable to apply the limit to them individually. An indication of facilities being managed as one account, among others, is that they are subject to a shared limit. To check against the limit, the total exposure at the time of classification (e.g. the drawn portion of a performing credit line) could be used. In practice, the facility limit or the EAD of an exposure, according to an AI's established policies, may be used as

[2] Although such a case is not envisaged, if an exposure to a financial institution meets the criteria of specialized lending, it should be classified under one of the five specialized lending exposures.

[3] Please refer to Q54 to Q57 of Chapter III STC approach for further guidance on identifying a transactor. The term carries the same meaning under the STC approach and the IRB approach.

	long as the conditions under §144(2) and (4A) are met.
Q15.	**How should an AI classify a loan to an individual which is not managed on a pooled or portfolio basis?**
A15.	As required under §144(6), such loans should be treated as corporate exposures. For an exposure to be eligible to be classified as a retail exposure, it must not be managed individually in a way comparable to corporate exposures, but rather as part of a portfolio segment or pool of exposures with similar risk characteristics for purposes of risk assessment and quantification. The requirement for exposures managed on a pooled or portfolio basis does not preclude retail exposures from being treated individually at some stages of the risk management process. The fact that an exposure is rated individually does not in itself preclude it from being eligible as a retail exposure.

Other exposures

Q16.	**Is gold bullion held on an unallocated basis for the institution by another person which is backed by gold bullion liabilities a cash item?**
A16.	The item is required to be treated as an exposure to a counterparty and risk-weighted under the IRB approach accordingly.

3. ***IRB calculation approaches***

Q17.	**Is there any expectation that an AI currently using the foundation IRB approach to calculate its credit risk for an IRB adoption class of corporate and sovereign exposures will migrate to the advanced IRB approach over time?**
A17.	No, there is no such a supervisory expectation. Each AI should select an approach for an IRB adoption class which is appropriate for its exposures within that IRB adoption class and commensurate with the sophistication of its internal risk management functions. As such, an AI currently using the foundation IRB approach to calculate its credit risk for an IRB adoption class of corporate and sovereign exposures can choose to remain on that approach.
Q18.	**Can an AI using the advanced IRB approach to calculate its credit risk for corporate and sovereign exposures switch to the foundation IRB approach? What if an AI applies to use the advanced IRB approach for some of its exposures and use the foundation IRB approach for the remaining exposures within an IRB adoption class?**
A18.	Except for the cases specified in §147(3A) concerning the transitional arrangements, any switching of IRB calculation approach (regardless of whether the return involves

	all exposures or only a portion of the exposures within an IRB class) requires the prior consent of the MA under §147(3). The switching from the advanced IRB approach to the foundation IRB approach for exposures within an IRB adoption class will be permitted only in exceptional circumstances (e.g. where an AI's business has been downsized to a level which does not justify the institution maintaining a highly sophisticated risk management system, or an AI's rating system is no longer able to reliably estimate one or more than one of the credit risk components[4]).
Q19.	**Can an AI choose to use the supervisory slotting criteria approach to calculate the risk-weighted amount of its specialized lending even though the institution is able to estimate the credit risk components of such lending as required in Part 6 of the BCR for corporate exposures?**
A19.	No. According to §143(2), an AI can only use the supervisory slotting criteria approach to calculate the risk-weighted amount of its specialized lending when the institution is not able to estimate the credit risk components of such lending (by each of the five IRB subclasses) for the use of the foundation IRB approach or the advanced IRB approach.
Q20.	**After 1 January 2025, which calculation approach should an AI use to calculate the credit risk of its equity exposures previously granted with the MA's approval to use the IRB approach?**
A20.	Under §147(3C), if an AI used the IRB approach before 1 January 2025 to calculate its credit risk for equity exposures (within the meaning of the pre-amended Part 6 of the BCR), the institution must use the STC approach on and after that date to calculate its credit risk for equity exposures. It is worth noting that under §139(1) after the amendment, equity exposure means an exposure that falls within §54A, which excludes, among others, an exposure that is a CIS exposure.

4. ***Default of obligor***

Q21.	**What is meant by "prescribed default criteria" in §149(9)?**
A21.	Under §149(9), "prescribed default criteria" means the criteria specified in §149(1). That section primarily sets out a default of the obligor in respect of an exposure of an AI has occurred if— (a) the institution considers that the obligor is unlikely to pay in full the obligor's credit obligations to the institution (or to any member of the consolidation group of the institution) ("banking group") without recourse by the institution to realizing any collateral held by the institution or taking any other action in respect of the exposure; or

[4] This may arise from the requirements from the Basel Committee or the home authority of an AI (in case where the institution is the subsidiary of a non-Hong Kong banking group) in estimation practices of credit risk components.

(b) subject to §149(2), (3) and (8), the obligor is past due for more than 90 days in respect of the payment of any material portion of all the obligor's outstanding credit obligations to the banking group.

The operation of other key provisions of §149 are outlined below for ease of reference.

§149(1A)	Presents a list of possible indications of "unlikely to pay" specified in §149(1).
§149(2)	Specifies that an AI may choose to apply the prescribed default criteria at the level of a particular exposure, rather than at the level of the obligor for retail exposures. As such, the default of a borrower on one obligation does not necessarily require an AI to treat all other obligations to the banking group as defaulted. In this connection, AIs are advised to set out, in their internal policies, under what circumstances all their exposures to the same obligor, including the retail exposure in question, would be treated as in default, and apply the policy consistently.
§149(3)	Clarifies the circumstances under which an overdraft provided by an AI to an obligor (being a borrower of the overdraft) should be regarded as past due.
§149(4) and (5)	Elaborate that an AI shall use the prescribed default criteria for its exposures under the IRB approach except for specific exposures where the institution is given with the MA's consent to use another set of default criteria set by the relevant banking supervisory authority of the parent bank of an institution, which is the local subsidiary of the parent bank ("alternative criteria"). It is currently envisaged that the use of alternative criteria is only justifiable for retail exposures and exposures to public sector entities, and the past due trigger within the alternative criteria is no more than 180 days.
§149(5A), (5B), (5C) & (5D)	Concern the default of obligors in a connected group:
• (5A)	Requires an AI to treat its exposures to all individual obligors in a connected group as being in default if— (a) a default of an obligor ("defaulting obligor") in the connected group has occurred; and (b) the defaulting obligor has been rated substantially on the basis of the economic or financial interdependence between the members in the connected group in accordance with the institution's policy and practices referred to in §154(d).
• (5B)	Provides flexibility in relation to retail exposures resembling §149(2) in the context of the default of a connected group.
• (5C) & (5D)	Specify the circumstances under which an AI may disregard §149(5A).

	§149(6) & (7)	Set out the requirements for the keeping of records of default, the generation of estimates of credit risk components, and the use of internal or external data in relation to the definition of default while §149(8) reaffirms that the practice of re-ageing is not allowed.

Q22.	**Guidance is sought on the "material" threshold in relation to the requirements set out in §149(1)(b), (1A)(a) and (c).**
A22.	AIs are expected to develop their own criteria in determining the materiality of a credit obligation and the materiality of credit-related economic loss for the purposes of §149(1)(b), (1A)(a) and (c). The criteria should be prudent and applied consistently within the consolidation group of an institution and should not jeopardize its internal policies and procedures for problem credit management. If an AI's parent bank is incorporated outside Hong Kong and subject to capital standards and/or supervisory guidance published by the parent bank's regulator that have specified levels of materiality thresholds or other criteria for determining materiality, the institution's own criteria for determining materiality should not be less prudent than those materiality thresholds and other criteria, unless otherwise justified. To avoid doubt, it is acceptable for an AI to ignore the word "material" in those paragraphs of §149(1) and (1A). Furthermore, an AI may, at its discretion, apply the flexibility for identifying defaults with respect to a group of exposures covering retail exposures of an obligor (or a connected group) set out in §149(2)(b) and (5B) in considering the relevant amount under its "materiality" criteria.
Q23.	**Is an AI required to treat an "automatic" realization of an obligor's collateral in respect of certain facility types (e.g. share margin financing) as an event of default where the realization of collateral is not due to the deterioration in the obligor's creditworthiness but to a fall in the value of the collateral?**
A23.	The definition of "default" may not apply in cases where the realization of collateral is not triggered by deterioration in an obligor's creditworthiness but by a fall in the value of the obligor's collateral (say, the shares pledged). In such cases, an AI will not be required to record a default of the obligor if the following two characteristics exist— (a) the facility is granted to finance the obligor's position in a financial instrument which qualifies as recognized financial collateral under the IRB approach; and (b) the collateral is realized to restore an agreed collateral coverage ratio after a fall in the value of the obligor's collateral, as a standard practice for such type of facility and where such practice has been disclosed to the obligor in writing at the inception of the facility.
Q24.	**What is meant by a "connected group" as referred to in §149(5A), (5B), (5C) and (5D)?**
A24.	The term "connected group" in these subsections should reflect the definition used by an AI for the purposes of §154(d)(ii). Where an AI adopts a "group support" policy in rating assignment in accordance with §154(c) and (d), the institution is

	required to determine and define (among other things) what constitutes a "connected group" of its obligors in that context. Please refer to A32 under the subject "Rating system design and operations" below for further guidance.
Q25.	**Why is an AI required to treat its exposures to all individual obligors in a connected group as being in default in the circumstances described in §149(5A)? Are there exceptions to the rule?**
A25.	To the extent that members of a connected group are treated on a group basis by an AI for the purposes of rating assignment pursuant to §154(c) and (d) and have, as a result, been assigned more favourable ratings (based on the available group support) than if they were rated on a standalone basis, it is prudent and logical that such group members be treated consistently on the same group basis for the purposes of the recognition of default within the group as provided for under §149(5A). Accordingly, AIs that adopt a group support policy in rating assignment should accept both: (a) the benefit of more favourable ratings being assigned to members of a connected group on the strength of available group support pursuant to §154(c) and (d); and (b) the adverse impact on members' ratings when §149(5A) becomes applicable. It would amount to cherry-picking if AIs were initially allowed to rate members of a connected group favourably on a group basis when there is no default among the members but, once the group support so recognized actually fails to prevent the default of a group member, were subsequently allowed to revert to rating other group members on a standalone basis. To do so would essentially ignore the interdependencies between the group members that had been recognized and relied upon pre-default. Recognizing however that the form and structure of conglomerates vary widely, the MA does not intend to mandate AIs to automatically regard the default of any one member of a connected group as a default of all the group members in all circumstances, and has therefore set out in §149(5B), (5C) and (5D) the circumstances under which §149(5A) will not apply.

5. ***Rating system design and operations***

General

Q26.	**[5] To what extent should material and relevant information on climate-related financial risks be used when assigning ratings to obligors and facilities? Relatedly, to what extent do the requirements for rating criteria and rating assignment require consideration of climate-related financial risks?**
A26.	AIs are advised to take into consideration material and relevant information on the impact of climate-related financial risks in rating assignment. The range of economic conditions or unexpected events that should be considered when making the

[5] Reference: FAQs inserted to Basel Framework CRE36.26, CRE36.30 and CRE36.86.

	assessment of a borrower's ability to perform should include climate-related financial risks, both physical and transition risks, if these materialize as credit risks. For further guidance, please refer to each individual FAQ1 under Basel Framework CRE36.26, CRE36.30 and CRE36.86. The FAQs on climate-related financial risks published by the Basel Committee are primarily intended to encourage banks to continuously develop their measurement and mitigation of climate-related financial risks (given the challenges arising from methodological and data limitations cannot be fully resolved at this time) and is not to introduce changes to the Pillar 1 standards. Thus, the HKMA will adopt a proportionate approach in assessing an AI's compliance and consider it pragmatic for an AI to focus on enhancing its framework and process initially, and to gradually improve its robustness.[6]
Q27.	[7] **How can AIs reflect climate-related financial risks in the supervisory slotting criteria for specialized lending?**
A27.	When performing the assessment of the category of the sub-factor components, AIs should analyse how climate-related financial risks could negatively impact the assignment into a category. This includes any potential impact on, but not limited to— (a) the financial strength (e.g. estimations of the future demand, economic assumption and stressed economic conditions used for stress analysis), (b) the political and legal environment (e.g. transition risk into "stability of legal and regulatory environment (risk of change in law)"), (c) physical risk into "force majeure risk (war, civil unrest, etc.)", and (d) the asset characteristic in the case of object finance. AIs should also take into consideration whether climate-related financial risks have been adequately mitigated (e.g. through improving adaptation or taking insurance coverage against physical climate risks).

Rating dimensions

Q28.	**Is an AI required to assign to the same obligor grade, separate exposures which it has to the same obligor?**
A28.	Yes, separate exposures to the same obligor should, in general, be assigned to the same obligor grade, irrespective of differences in the transaction-specific factors (e.g. collateral, seniority of repayment, tenor and product type) of those exposures. However, an AI may do otherwise if the institution demonstrates to the satisfaction of the MA that the risk of default of a particular obligor is different in respect of different exposures the institution has to that obligor (re: §150(3)(b)).

[6] To avoid doubt, this paragraph is also applicable to Q27, Q39 and Q77.
[7] Reference: FAQs inserted to Basel Framework CRE33.13.

	Below are two typical examples where this might be the case— (a) To reflect country risk and transfer risk[8], an AI may assign to different obligor grades, different exposures which it has to the same obligor, if some of the exposures are denominated in local currency and others are denominated in foreign currency. (b) Under the foundation or advanced IRB approach, an AI may reflect the credit risk mitigating effect of a recognized guarantee or recognized credit derivative contract in respect of an exposure through adjusting the PD of the obligor in respect of that exposure.

Rating structure

Q29.	**Is it possible for an AI to have more than one obligor grade or pool to which exposures to obligors who are in default can be assigned?**
A29.	Yes, provided that the rating definitions and criteria of these obligor grades or pools are clear and specific.
Q30.	**Under what circumstances will the MA regard an AI's process for assigning its exposures to obligor grades, as leading to excessive concentration on a particular obligor grade?**
A30.	Generally, if an AI's process of assignment leads to more than 30% of its exposures being assigned to a particular obligor grade, this will be regarded as a sign of excessive concentration. Significant concentration on a particular obligor grade should be justified by convincing empirical evidence that the obligor grade concerned covers a reasonably narrow PD range and the default risk posed by all obligors in respect of exposures assigned to that grade falls within that PD range.

Rating assignment horizon

Q31.	**[9] What are the requirements concerning the drivers of migrations from one category of obligor grade to another?**
A31.	As set out in §153(b), an AI shall ensure that the obligor grade to which an exposure is assigned accurately represents the institution's assessment of the willingness and ability of an obligor in respect of the exposure to perform the obligor's contractual obligations, after considering any potentially adverse economic conditions over an economic cycle within the industry or geographic region relevant to the obligor.

[8] Country risk and transfer risk refer to the risks that the obligor may not be able to secure foreign currency to service its external credit obligations due to adverse changes in foreign exchange rates or when the jurisdiction in which it is operating suffers economic, political or social problems.
[9] Reference: Basel Framework CRE36.30.

	The range of economic conditions that are considered when making assessments must be consistent with current conditions and those that are likely to occur over a business cycle within the respective industry/geographic region. Rating systems should be designed in such a way that idiosyncratic or industry-specific changes are a driver of migrations from one category to another, and business cycle effects may also be a driver (re: Basel Framework CRE36.30).

Rating coverage

Q32.	**What are the key factors that an AI should consider if it wishes to apply the concept of "group support" in rating individual obligors in a connected group in accordance with §154(c) and (d)?**
A32.	Some key considerations which AIs may take into account in formulating the policy referred to in §154(d) on the assignment of obligor grades to individual obligors in a connected group are set out below.[10] (a) AIs should define what constitutes a connected group for the purposes of §154(c) and (d), with strong justification and clear documentation of the grouping criteria. (b) AIs should establish and justify the "recognition" criteria for taking into account certain support provided by member(s) of a connected group, and the extent to which such support is reflected, in the determination of the obligor grades of individual obligors within the connected group, by assessing all relevant factors, which include, but are not limited to, the following— (i) the source, nature, form and availability of support to obligors in a connected group; (ii) the identification of, and justification for, those obligors within a connected group in respect of which the obligor grades will be adjusted to reflect the strength of support provided by the group; (iii) the extent to which the group support is actually available to individual obligors within the connected group; (iv) the willingness, ability and past behaviour of the support provider in honouring assurances to the relevant obligor or comparable commitments to similar beneficiaries, in both normal and stressed times; (v) any material specific wrong-way risk and interconnectedness between the obligor and the support provider; (vi) the potential obligations, whether contractual or not, of the "beneficiary" obligors in question to lend support, in turn, to other group members; and

[10] Please note this list is not intended to be exhaustive, and AIs should take into account their specific circumstances in their effort to comply with §154(c) and (d).

	(vii) the ability of, and the effectiveness with which, the AI is able to validate or benchmark its process, methodology and data for incorporating group support into the ratings of individual obligors in a connected group, and the resulting adjustments made to the stand-alone ratings of such obligors. (c) AIs may also draw reference to analogous requirements in the credit risk mitigation frameworks set out in the BCR (e.g. §77 and Division 10 of Part 6) or in SPM modules such as CR-G-7 on "*Collateral and guarantees*". (d) In cases where the support provider and the beneficiary obligor fall under the purview of different regulators and/or are located in different jurisdictions, any cross-sector and cross-border restrictions and country risk (e.g. exchange controls, liquidity constraints, supervisory ring-fencing measures) that may hinder the availability of the support should be taken into account. (e) AIs should exercise prudence, conservatism and consistency in quantifying the extent of group support for the purposes of rating individual obligors, in order not to under-estimate the default risk arising from exposures to the individual obligors in the connected group. (f) There should not be any double-counting of the credit risk mitigating benefits incorporated into the internal ratings of obligors in a connected group pursuant to §154(c) and (d) and those recognized under the credit risk mitigation frameworks of the BCR. (g) As in the case of other established policies and rating systems of AIs, the group support framework should be subject to proper approval procedures, regular independent reviews and validations, and regular and timely updates.

Integrity of rating process

Q33.	**§155(a) requires that the rating process of an AI be "independent" of the staff and management responsible for originating such exposures. What are the factors for assessing whether this "independence" criterion is met?**
A33.	The concept of "independence" is a fundamental risk management principle and is commonly deployed in numerous prudential supervisory standards and risk management literature. Consistent with its interpretation in a generic sense, the following scenarios would generally indicate that a member of the staff or management of an AI is "independent" of the credit origination process for an exposure for the purposes of §155(a): (a) the person does not directly stand to benefit from the extension of credit (e.g. in the form of bonus or other type of monetary or non-monetary compensation the availability and size of which are primarily linked to the origination of credit exposures);

	(b) the person is independent of the institution's risk-taking functions, in terms of decision-making, reporting structure and resourcing (i.e. the risk-taking functions do not control the compensation package of the person concerned, or the budget or financing of the organizational unit to which that person belongs); and (c) the person is free from potential conflict of interest in relation to the credit origination process in general and the exposures being rated or reviewed in particular (e.g. that person is not a connected person (as defined by relevant regulatory and supervisory requirements applicable to the institution) in respect of the obligor of the exposure concerned).
Q34.	**What is the supervisory expectation on the timeliness of rating review in response to new material information on an exposure in respect of audited financial statements of obligors (re: §155(c))?**
A34.	In assessing whether an AI has timely incorporated new material financial information in respect of the audited financial statements of obligors into rating assignments under §155(c), the HKMA will consider, among others, the regulations and accounting standards in different jurisdictions, the utilization of information within a rating system, the characteristics of obligors, and an indicative benchmark of a 15-month time lag. Similar to the guidance provided in A7, an AI may supplement the updated audited financial report that is unavailable with other reliable information, subject to necessary adjustments. The HKMA considers that conservative adjustments to rating assignments could be used to compensate for the use of stale data, but these cannot replace an AI's efforts to obtain new material information on exposures in order to ensure the integrity of its rating process as required by §155(c).

6. ***Estimation of credit risk components***

General

Q35.	**[11] What are the regulatory requirements on the data for the estimation of credit risk components?**
A35.	Internal estimates of PD, LGD, and EAD must incorporate all relevant, material and available data, information and methods. An AI may utilize internal data or data from external sources (including pooled data) or both provided— (a) the AI must demonstrate that its estimates are representative of long run experience (covering at least one economic cycle which captures a reasonable mix of high-default and low-default years) (re: §148(d)(i)).

[11] Reference: Basel Framework CRE36.66, CRE36.79, CRE36.82, CRE36.87, CRE36.88, CRE36.98 and CRE36.99.

	(b) the AI must also demonstrate that the economic or market conditions that underlie the data are relevant to current and foreseeable conditions (re: §148(d)(ii)). (c) the population of exposures represented in the data used for estimation, and lending standards in use when the data were generated, and other relevant characteristics should be closely matched to or at least comparable with those of the institution's exposures and standards. (d) the number of exposures in the sample and the data period used for quantification must be sufficient to provide the AI with confidence in the accuracy and robustness of its estimates. (e) the criteria for identifying default of obligor in respect of an exposure comply with §149. In addition, the data should be in compliance with the specific requirements set out in— (a) §159(1)(d) for the estimation of PD under the foundation IRB approach or the advanced IRB approach (see also A40); (b) §161(1)(e) for the estimation of LGD under the advanced IRB approach; (c) §164(4)(f) for the estimation of EAD under the advanced IRB approach (see also A48); (d) §177(1)(e) and (2) for the estimation of PD under the retail IRB approach (see also A40); (e) §178(1)(g) for the estimation of LGD under the retail IRB approach; and (f) §180(3)(b) for the estimation of EAD under the retail IRB approach. Further to meeting the specific requirements for the minimum data observation period, if the available observation period spans a longer period for any source, and the data are relevant and material, this longer period must be used. In addition, as a general principle, the less data an AI has, the more conservative it must be in its estimation of credit risk components.
Q36.	**How can an AI deal with the problem of limited default data in estimating the credit risk components of a low-default portfolio ("LDP")?**
A36.	An LDP is a portfolio of exposures which, for whatever reason, has a relatively low number of defaults. In practice, the following portfolios may be regarded as LDPs— (a) portfolios that historically have experienced low numbers of defaults and are generally considered to be low risk (e.g. exposures to sovereigns, banks, insurance companies and highly rated corporates);

	(b) portfolios that are relatively small in size either for the banking sector as a whole or at an individual bank level (e.g. project finance and shipping loans); (c) portfolios for which a bank is a recent market entrant; and (d) portfolios that have not incurred recent losses but historical experience or other analysis suggests that there is a greater likelihood of losses than is captured in recent data. Historical incidents, particularly the global financial crisis of 2007/2008 and the subsequent European sovereign debt crisis, illustrate that although an LDP may hitherto have been characterized by its low number of defaults, this does not necessarily mean that it can inevitably also be characterized as low risk. There are a number of data-enhancing techniques and statistical or benchmarking tools an AI may wish to use in order to increase the reliability of the credit risk components relating to exposures falling within an LDP. For further details, see section 10 of the SPM module CA-G-4 on "*Validating Risk Rating Systems under the IRB Approach*", and the explanatory guidance entitled "*Validation of low-default portfolios in the Basel II Framework*" issued by the Basel Committee in its Newsletter No. 6 (September 2005).
Q37.	**[12] What shall an AI do in respect of the estimation of credit risk components if changes were made in lending practice or the process for pursuing recoveries over the observation period?**
A37.	§148(c) sets out that an AI shall, among others, take into account all relevant data and information available to estimate credit risk components. Accordingly, the institution should consider any changes in lending practice or the process for pursuing recoveries over the observation period to make estimates of PD and, where relevant, LGD and EAD (re: Basel Framework CRE36.65).
Q38.	**Generally, the estimation of PD, LGD and EAD requires the data source, among other things, to cover at least one economic cycle (see A35 above). What does an "economic cycle" mean?**
A38.	There is no universally accepted definition of the term "economic cycle". However, an "economic cycle" typically consists of a sequence of 4 distinct phases as described below— (a) economic downturn (or economic contraction) which depicts a trend of slowdown in the level of economic activity in terms of real GDP and other macroeconomic variables; (b) economic trough which describes the bottom of an economic cycle where an economic downturn turns into an economic upturn; (c) economic upturn (or economic expansion) which depicts a trend of

[12] Reference: Basel Framework CRE36.65.

	acceleration in the level of economic activity in terms of real GDP and other macroeconomic variables; and (d) economic peak which describes the peak of an economic cycle where an economic upturn turns into an economic downturn.
Q39.	**[13] Should AIs add a margin of conservatism to estimates of credit risk components to account for the fact that historical data are less satisfactory to capture climate-related financial risks, increasing the likely range of errors?**
A39.	When an AI's credit portfolio is materially exposed to climate-related financial risks, the institution should strive primarily to consider these risks directly in its estimates. An AI should add a margin of conservatism due to data deficiencies, such as poor data quality or scarce climate-related data, and to other sources of additional uncertainties. For further guidance, please refer to FAQ1 under Basel Framework CRE36.67 and FAQ2 under Basel Framework CRE36.86.

Probability of default ("PD")

Q40.	**[14] How shall an AI take appropriate account of the long run experience when estimating the average PD for each rating grade for its corporate, sovereign and bank exposures?**
A40.	AIs shall use information, data and techniques that take appropriate account of the long run experience when estimating the average PD for each rating grade (re: §159(2)(a)). AIs may use a primary technique and others as a point of comparison and potential adjustment, provided that the institution acts prudently in the comparison and adjustments, but mechanical application of a technique without supporting analysis is not acceptable (re: §159(2)(b)). AIs must recognize the importance of judgmental considerations in combining the results of techniques and in making adjustments for limitations of techniques and information. For example, it is understood that AIs may use one or more of the three specific techniques set out below: internal default experience, mapping to external data, and statistical default models. For all of them, institutions must estimate a PD for each rating grade based on the observed historical average one-year default rate that is a simple average based on the number of obligors (count weighted). Weighting approaches, such as EAD weighting, are not permitted. (a) An AI may use data on internal default experience for the estimation of PD. In this connection, the institution— (i) must demonstrate in its analysis that the estimates are reflective of underwriting standards and of any differences in the rating system that generated the data and the current rating system;

[13] Reference: FAQs inserted to Basel Framework CRE36.67 and CRE36.86.
[14] Reference: Basel Framework CRE36.78.

	(ii) where only limited data are available, or where underwriting standards or rating systems have changed, must add a greater margin of conservatism in its estimate of PD; (iii) in the case of using pooled data across institutions, must demonstrate that the internal rating systems and criteria of other institutions in the pool are comparable with its own. (b) AIs may associate or map their internal grades to the scale used by an external credit assessment institution or similar institution ("external institutions") and then attribute the default rate observed for the external institution's grades to its grades. In this connection— (i) Mappings must be based on a comparison of internal rating criteria to the criteria used by the external institutions and on a comparison of the internal and external ratings of any common borrowers. (ii) Biases or inconsistencies in the mapping approach or underlying data must be avoided. (iii) External institutions' criteria underlying the data used for quantification must be oriented to the risk of the borrower and not reflect transaction characteristics. (iv) The AI's analysis must include a comparison of the default definitions used, subject to the requirements in §149. (v) The AI must document the basis for the mapping. (vi) The AI should consider whether the scale used by the external institutions reflects material climate-related financial risks. For details, please refer to FAQ1 under Basel framework CRE36.78. (c) An AI is allowed to use a simple average of default-probability estimates for individual borrowers in a given grade, where such estimates are drawn from statistical default prediction models.
Q41.	**[15] What are the requirements on the length of the underlying historical observation period for estimating PD for corporate, sovereign, bank and retail exposures?**
A41.	For PD estimation, irrespective of whether an AI is using external, internal, or pooled data sources, or a combination of the three, the length of the underlying historical observation period used must be at least five years for at least one source of data. The data should include a representative mix of good and bad years of the economic cycle relevant to the respective exposures (re: §159(1)(d) and §177(1)(e)). If the available observation period spans a longer period for any source, and this data are relevant and

[15] Reference: Basel Framework CRE36.79 and CRE36.82.

	material, the longer period must be used. Furthermore, the estimation of PD for retail exposures should be based on the observed historical average one-year default rate (re: §177(1)(ab)).

Loss given default ("LGD")

Q42.	**[16] What is the definition of loss used in estimating LGD?**
A42.	The definition of loss used in estimating LGD is economic loss. When measuring economic loss, all major factors should be taken into account, including the time value of money, the risk premium, and any direct and indirect costs associated with collection (re: §161(2)(b) and §178(2)(b)). AIs must not simply measure the loss recorded in accounting records, although they must be able to compare accounting and economic losses. The institution's own workout and collection expertise significantly influences their recovery rates and must be reflected in their LGD estimates, but adjustments to estimates for such expertise must be conservative until the institution has sufficient internal empirical evidence of the impact of its expertise.
Q43.	**[17] How can an AI ensure that the LGD estimate of each of its facility types (in the case of §161(1)(a)), or the LGD estimate of each pool of its retail exposures (in the case of §178(1)(a)) reflects economic downturn conditions?**
A43.	An AI must take into account the potential for the LGD of the facility to be higher than the default-weighted average during a period when credit losses are substantially higher than average. For certain types of exposures, loss severities may not exhibit such cyclical variability and LGD estimates may not differ materially from the long run default-weighted average. However, for other exposures, this cyclical variability in loss severities may be important and AIs will need to incorporate it into their LGD estimates. For this purpose, AIs may make reference to the averages of loss severities observed during periods of high credit losses, forecasts based on appropriately conservative assumptions, or other similar methods. Appropriate estimates of LGD during periods of high credit losses might be formed using either internal and/or external data. In addition, AIs should adhere to the principles set out in the explanatory guidance entitled "*Guidance on Paragraph 468 of the Framework Document*" (July 2005) issued by the Basel Committee in the process of identifying economic downturn conditions for incorporation into their LGD estimates where appropriate. These principles, as they relate to AIs, include the following— (a) an AI must have a rigorous and well-documented process for assessing the

[16] Reference: Basel Framework CRE36.76.
[17] Reference: Basel Framework CRE36.83.

	effects, if any, of economic downturn conditions on recovery rates[18] and for producing LGD estimates consistent with these conditions. The process must consist of the following integrated components – (i) the identification of appropriate downturn conditions in each jurisdiction to which the institution's recovery rates in respect of exposures within a particular IRB class are sensitive; (ii) the identification of adverse dependencies, if any, between default rates and recovery rates; and (iii) the incorporation of adverse dependencies, if identified, between default rates and recovery rates so as to produce LGD parameters for the institution's exposures consistent with identified downturn conditions; (b) in discounting the cash flows used in LGD estimation, the measurement of recovery rates should reflect the cost of holding defaulted exposures over the workout period, including an appropriate risk premium; and (c) an AI should provide the HKMA with the long run default-weighted average loss rate given default for every relevant facility type unless the institution can demonstrate to the HKMA that: (i) its estimate of loss rate given default under downturn conditions is consistent with items (a) and (b) above; and (ii) reporting a separate estimate of long run default-weighted average loss rate given default would not be practical.
Q44.	**[19] Guidance is sought on using collateral's estimated market value in LGD estimation.**
A44.	The LGD estimates must be based on historical recovery rates of exposures but not solely be based on the estimated market value of collateral (re: §161(1)(c) and §178(1)(e)). This requirement recognizes the potential inability of AIs to gain both control of their collateral and liquidate it expeditiously. To the extent that LGD estimates take into account the existence of collateral, institutions must establish internal requirements for collateral management, operational procedures, legal certainty and risk management process that are generally consistent with those required for the foundation IRB approach.
Q45.	**Are the LGD floor values in Table 19A intended to apply commonly to all recognized collaterals under the advanced IRB approach, disregarding whether they are recognized financial collateral and recognized IRB collateral? If any**

[18] Recovery rate means, for a defaulted exposure, the present discounted value at the default date of recoveries received net of material direct and indirect costs associated with collecting on the exposure, divided by the EAD of the exposure.

[19] Reference: Basel Framework CRE36.85.

	recognized collateral cannot be mapped to any of the four types of collateral in the table, what is the LGD floor value to be used for the purposes of §161?
A45.	In accordance with §139(1), a recognized collateral under the advanced IRB approach means any collateral which— (a) is recognized by an AI for credit risk mitigation in accordance with its policies and procedures, and (b) satisfies the requirements under §77(2). For the purposes of §161, an AI may map a recognized collateral that secures an exposure under the advanced IRB approach to the LGD floors by types of recognized collateral in Table 19A of §161. In this connection, an AI should have comprehensive policies and procedures in place on collateral recognition for capital calculation. Those recognized collaterals that an AI fails to map to the categories in Table 19A should be excluded from the LGD floor determination.
Q46.	**[20] Guidance is sought on the LGD estimate assigned to a defaulted exposure.**
A46.	Recognizing the principle that realized losses can at times systematically exceed expected levels, the LGD assigned to a defaulted exposure should reflect the possibility that an AI would have to recognize additional, unexpected losses during the recovery period (re: §161(1)(d) and §178(1)(f)). For each defaulted exposure, the AI must also construct its best estimate of the expected loss on that asset based on current economic circumstances and facility status. The amount, if any, by which the LGD on a defaulted exposure exceeds the AI's best estimate of expected loss on the exposure represents the capital requirement for that exposure, and should be set by the institution on a risk-sensitive basis in accordance with §156(4) and §176(5) as appropriate. Instances where the best estimate of expected loss on a defaulted asset is less than the sum of specific provisions and partial charge-offs on that asset must be justified. The details and the justification should be well documented for supervisory scrutiny upon request.

Exposure at default ("EAD")

Q47.	**[21] Please give some examples of how EAD estimation is appropriate for an economic downturn referred to in §164(4)(c) apart from basing the estimate of the EAD on alternative measures of central tendency or only on the economic downturn data with specific requirements set out in §164(4)(ca)?**
A47.	For AIs that have been able to develop their own EAD models, this could be achieved by considering the cyclical nature, if any, of the drivers of such models. Other institutions may have sufficient internal data to examine the impact of previous

[20] Reference: Basel Framework CRE36.86.
[21] Reference: Basel Framework CRE36.90.

	recession(s). However, some institutions may only have the option of making conservative use of external data.
Q48.	**[22] Guidance is sought on the reference data set for EAD estimation.**
A48.	AIs are required to observe the below requirements concerning the reference data set for EAD estimation. (a) Fixed-horizon approach**.** AIs' EAD estimates must be developed using a 12-month fixed-horizon approach, i.e. for each observation in the reference data set, default outcomes must be linked to relevant obligor and facility characteristics twelve months prior to default. (b) Homogeneity of reference data. AIs' EAD estimates should be based on reference data that reflect the obligor, facility and bank management practice characteristics of the exposures to which the estimates are applied. Consistent with this principle, EAD estimates applied to particular exposures should not be based on data that comingle the effects of disparate characteristics or data from exposures that exhibit different characteristics (e.g. same broad product grouping but different customers that are managed differently by the institution). The estimates should be based on appropriately homogenous segments. Alternatively, the estimates should be based on an estimation approach that effectively disentangles the impact of the different characteristics exhibited within the relevant dataset. In this connection, Basel Framework CRE36.94 provides practices that generally do not comply with this principle. (c) Elements to be included. EAD reference data must not be capped to the principal amount outstanding or facility limits. Accrued interest, other due payments and limit excesses should be included in EAD reference data. (d) Concerning counterparty credit risk exposures. For transactions that expose AIs to counterparty credit risk, estimates of EAD must fulfil the requirements concerning counterparty credit risk set forth in Part 6A of the BCR and the relevant regulatory guidance.
Q49.	**[23] Guidance is sought on the region of instability associated with facilities close to being fully drawn at the reference date when an AI estimates credit conversion factors ("CCFs") with undrawn limit factor ("ULF") approach.**
A49.	A well-known feature of the commonly used ULF approach in estimating CCFs is the region of instability associated with facilities close to being fully drawn at reference date. AIs should ensure their EAD estimates are effectively quarantined from the potential effects of the region of instability by making reference to the practical guidance set out in Basel Framework CRE36.95.

[22] Reference: Basel Framework CRE36.93, CRE36.94, CRE36.96 and CRE36.97.
[23] Reference: Basel Framework CRE36.95.

Maturity under foundation IRB approach / advanced IRB approach

Q50.	**§167(1)(c) and (2) allow an AI that uses the foundation IRB approach to give written notice to the MA within 7 days after commencing to calculate the maturity ("M") of the institution's corporate, sovereign and bank exposures in accordance with §168. What requirements should an AI follow for the purpose of this arrangement?**
A50.	To strike a balance among flexibility, operational complexity and potential regulatory arbitrage, AIs are expected to— (a) switch the maturity treatment of all their corporate, sovereign and bank exposures under the foundation IRB approach to the advanced IRB approach, and such change should not be effected by phases (i.e. partial adoption is not allowed).[24] Furthermore, the maturity treatment under §168 should be adopted for any subsequent applications for switching the calculation approach of other corporate, sovereign and bank exposures from the STC approach to the foundation IRB approach; (b) establish rigorous internal processes and systems to capture the relevant data and calculate the maturity of exposures under the advanced IRB approach. Institutions should put in place adequate controls and monitoring to ensure the reliability and accuracy of the M used in regulatory capital calculation (see sections 4 to 6 of the SPM module CA-G-4 on "*Validating Risk Rating Systems under the IRB Approach*"; and (c) subject the related processes and systems to adequate assessment by a competent independent party with proper documentation for review by a third party. The "independent party" and the "third party" can be managed by the departments or units within an institution, provided that these parties are independent from developing the rating systems and related processes in the determination of M.

Calculation of risk-weighted amount in respect of purchased receivables

Q51.	**Are there any special considerations relevant to the use by AIs of the top-down approach to estimate PD and LGD (or, if applicable, EL) for the calculation of the risk-weighted amount for default risk of purchased receivables (as referred to in §§198 and 200)?**

[24] As a transitional arrangement, an AI that—
(i) had obtained the MA's consent under the pre-amended §167(c) before 1 January 2025 to calculate the M under §168 for specific, but not all, corporate, sovereign or bank exposures, and
(ii) encounters genuine difficulties in calculating the maturity for all relevant exposures in accordance with §168 by the commencement of the revised §167,
may continue the prevailing calculation until the date set out in its plan to expand the treatment under §168 to all relevant corporate, sovereign or bank exposures agreed by the MA. Also note that, regardless of whether the previous consent covers all or specific corporate, sovereign or bank exposures, an AI must give written notice to the MA in the manner specified in §167(2), i.e. the previous consent has no bearing on the notification requirement.

A51.	For the purposes of using the top-down approach to calculate the risk-weighted amount for default risk of purchased receivables, AIs are expected to be, and should ensure that they are operationally capable of managing various risks associated with the pool of purchased receivables and their advances against those receivables, as described in Basel Framework CRE36.114 to CRE36.121. The requisite systems, policies and controls are, in many aspects, akin to those applicable to the recognition of financial receivables for credit risk mitigation purposes under the IRB approach set out in §205(1) (re: Basel Framework CRE36.134 to CRE36.142), or are reflective of general credit risk management principles set out in the HKMA's supervisory guidelines. The overarching objective is to ensure that AIs' use of the top-down approach is supported by prudent risk management of the purchased receivables designed to safeguard their claims on those receivables from potential loss. Key elements of systems, policies and controls relevant to the risk management of purchased receivables are: (a) Legal certainty: to ensure that, through the proper structuring of the contractual terms of the relevant facility and through the verification of payments where applicable, there is effective ownership and control of the purchased receivables and the associated cash receipts or remittances, including in cases where the seller or servicer of the receivables is in financial distress or bankruptcy (re: Basel Framework CRE36.116); (b) Effective monitoring and work-out systems: including measures to ensure the effective monitoring of both the quality of the purchased receivables and the financial condition of the relevant sellers and servicers. These would cover: (i) assessment of correlation between these two factors and safeguards against related contingencies; (ii) assessment of eligibility of the sellers and servicers and their credit risk management and collection systems; (iii) assessment and monitoring of the risk characteristics (including concentration risk) of the receivables; (iv) monitoring compliance with established policies, procedures and limits in respect of exposures to receivables; (v) monitoring and handling of problem credits; and (vi) related management reporting and documentation requirements (re: Basel Framework CRE36.117 to CRE36.118); (c) Effective controls over purchased receivables, credit availability and cash: including having clear and effective policies and procedures to govern key aspects of the receivables purchase programme ("RPP"), including collateral requirements and controls, advancement of funds and receipt of cash (re: Basel Framework CRE36.119); and (d) Compliance with internal policies and procedures: including an effective internal process to assess compliance with critical policies and procedures through: (i) regular internal and/or external audits of all critical phases of the RPP; (ii) verification of separation of duties between business and risk management functions; and (iii) adequacy of back-office operations (re: Basel Framework CRE36.120 to CRE36.121).

Credit risk mitigation

Q52.	**[25] What are supervisory expectations on the monitoring process of recognized financial receivables referred to in §205(1)(g)?**
A52.	An AI must maintain a continuous monitoring process that is appropriate for the specific exposures (either immediate or contingent) attributable to the collateral to be utilized as a risk mitigant. This process may include, as appropriate and relevant, ageing reports, control of trade documents, borrowing base certificates, frequent audits of collateral, confirmation of accounts, control of the proceeds of accounts paid, analyses of dilution (credits given by the borrower to the issuers) and regular financial analysis of both the borrower and the issuers of the receivables, especially in the case when a small number of large-sized receivables are taken as collateral. Observance of the AI's overall concentration limits should be monitored. Additionally, compliance with loan covenants, environmental restrictions, and other legal requirements should be reviewed on a regular basis.
Q53.	**[26] Guidance is sought on the recognition of subsequent liens on, or subsequent charge over, the property collateral referred to in §206(c)(ii).**
A53.	Subsequent liens or subsequent charges ("junior liens") may be taken into account where there is no doubt that the claim for collateral is legally enforceable and constitutes an efficient credit risk mitigant. Where junior liens are recognized, an AI must first take the haircut value of the collateral, then reduce it by the sum of all exposures with liens that rank higher than the junior lien, the remaining value is the collateral that supports the exposure with the junior lien. In cases where liens are held by third parties that rank *pari passu* with the lien of the institution, only the proportion of the collateral (after the application of haircuts and reductions due to the value of exposures with liens that rank higher than the lien of the institution) that is attributable to the institution may be recognized.
Q54.	**[27] Guidance is sought on the operational requirements to constitute commercial or residential real estate as recognized commercial real estate or recognized residential real estate.**
A54.	Apart from observing paragraphs (a) to (l) of §206, AIs are expected to monitor on an ongoing basis the extent of any permissible prior claims (e.g. tax) on the property and appropriately monitor the risk of environmental liability arising in respect of the collateral, such as the presence of toxic material on a property. The assessment of the risk of environmental liability should have been a part of AIs' collateral management, where a risk-based approach to the assessment and monitoring of it is deemed acceptable. Specifically, an AI's collateral management system should specify possible follow-up actions for negative monitoring results, and the removal of a property's eligibility as collateral for capital adequacy purposes should be one of the options where warranted. Such monitoring may be carried out

[25] Reference: Basel Framework CRE36.140.
[26] Reference: Basel Framework CRE36.131(4).
[27] Reference: Basel Framework CRE36.131 and CRE36.132.

	on a best efforts basis, but should not rely on any single tool such as negative news checking. Furthermore, for the purposes of §206(f), among other measures, an AI should ensure any claim on collateral is properly filed on a timely basis. (re: Basel Framework CRE36.131(1), CRE36.132(3) and (4)).
Q55.	**[28] Guidance is sought on the recognition of physical collateral for an exposure secured by a general security agreement (or an equivalent form of floating charges) under the foundation IRB approach.**
A55.	Where an AI's exposure is secured by a general security agreement (or an equivalent form of floating charge) over both recognized collateral and other types of collateral, the institution may only recognize the security interest over recognized collateral. Such recognition is conditional on the fulfilment of the relevant operational requirements set out in §207.
Q56.	**[29] What should an AI observe regarding the periodic revaluation under §207(j) of "fashion-sensitive" physical collateral?**
A56.	For the purposes of the periodic revaluation process, besides those requirements applicable to all physical collateral, an AI must pay particular attention to "fashion-sensitive" collateral to ensure that valuations are appropriately adjusted downward of fashion, or model-year, obsolescence as well as physical obsolescence or deterioration.
Q57.	**In general, what circumstances would be considered not practicable for an AI to conduct periodic inspection of physical collateral as required under §207(j)?**
A57.	An AI that has not conducted periodic inspection of physical collateral on practicality grounds under §207(j) should, if requested by the HKMA, be able to explain, and substantiate with objective and reliable evidence, why it has not been possible or feasible for the institution to conduct a physical inspection. The institution's justification will be assessed on a case-by-case basis, taking into account the circumstances of the institution at the material time. Physical inspection might, for example, be hindered by events such as— (a) the institution concerned was subject to some form of severe bank-wide distress or crisis, rendering it imprudent to divert resources to some routine operations, such as scheduled inspections of physical collateral; (b) the physical collateral to be inspected was contaminated (e.g. by chemical spills), rendering it hazardous for staff of the institution to conduct the inspection;

[28] Reference: Basel Framework CRE36.145.
[29] Reference: Basel Framework CRE36.144(4).

	(c) the physical collateral to be inspected was located in an area where there was a severe natural disaster (e.g. earthquake). The above examples are provided for illustrative purposes only and it should be noted that strong justifications will be required to support claims of impracticability of inspection. The HKMA would not concur that it was not practicable for an AI to conduct periodic inspection of physical collateral as required under §207(j) if the institution clearly had the ability, and was in a position, to do so without incurring significant cost or effort. Therefore, a general principle is that if a "hindering" event is outside the control or influence of the institution concerned, the HKMA would be more inclined to accept it as an acceptable justification for the purposes of §207(j).
Q58.	**Could an AI take into account the credit risk mitigating effect of a recognized guarantee or a recognized credit derivative contract if the institution does not use the IRB approach to calculate its credit risk for exposures to the guarantor or counterparty?**
A58.	Yes. An AI is allowed to take into account the credit risk mitigating effect of a recognized guarantee or a recognized credit derivative contract even if the institution uses the STC approach to calculate its credit risk for exposures to the guarantor or counterparty provided the relevant requirements set out in §216 or 217, where applicable, are satisfied.
Q59.	**What are the key requirements governing the adjustment of an AI's estimate of the PD or LGD of the underlying exposure for the purpose of taking into account the credit risk mitigating effect of a recognized guarantee or a recognized credit derivative contract under §217?**
A59.	To take into account the credit risk mitigating effect, an AI must, according to §217(1), adjust the institution's estimate of the PD or LGD of the underlying exposure. §217(3) further requires that if PD adjustment is chosen, such adjustment has to be made in accordance with §216, which implies that the discretionary LGD replacement under §216(3)(c) is also available. Correspondingly, an AI may reflect the concerned credit risk mitigating effect by adjusting the estimate of LGD exclusively. Regarding the criteria and processes for making adjustments to the PD and LGD estimates, §217(2) requires an AI to ensure that its criteria and processes satisfy, subject to some other conditions, the requirements set out in Part 6 of the BCR applicable to the institution for assigning exposures to obligor grades and facility grades. As such, the guarantor, the counterparty and the credit risk mitigant are subject to the same requirements on rating assignment and credit risk component estimation as the obligor and the underlying exposure. In addition, §217(2) is also intended to, among others, cover Basel Framework CRE32.27 that, whether the adjustments are made through PD or LGD, they must be made consistently for a given guarantee or credit derivative type.

7. ***Treatment of expected losses and eligible provisions***

Q60.	**Why is an AI required to compare its total eligible provisions with its total EL amount as calculated under the IRB approach for the computation of its capital base?**
A60.	The IRB approach is based on measures of unexpected losses and expected losses. For capital adequacy purposes, an AI should cover its expected losses by making adequate provisions and cover its unexpected losses by setting aside sufficient regulatory capital. The formulae used (e.g. Formula 16 of the BCR) to calculate the risk-weighted amount of an exposure produce a capital requirement for the exposure which covers unexpected loss only. Each AI is thus required to separately calculate the total EL amount of its exposures subject to the IRB approach and compare the amount so calculated with the total eligible provisions which are attributable to these exposures. Any excess of, or shortfall in, an AI's eligible provisions should then be reflected in the institution's capital base, as if the institution had reduced, or increased, its provisions to a level that would fully cover its expected losses. This rationale extends why requirements for an AI to calculate its EL amount for its other exposures under the specific risk-weight approach is not required.
Q61.	**How should an AI apportion its total regulatory reserve for general banking risks and collective provisions for the purpose of §221 if the institution uses a combination of approaches, say the IRB approach and STC approach, to calculate its credit risk?**
A61.	The method of apportionment is set out in §42(2)(a). In general, an AI should apportion its total regulatory reserve for general banking risks and collective provisions between the approaches it uses to calculate its credit risk (i.e. the STC approach, the IRB approach, SEC-IRBA, SEC-ERBA, SEC-SA and SEC-FBA) on a pro-rata basis. The apportionment should be made in accordance with the proportions of the institution's risk-weighted amount for credit risk which have been calculated using the different approaches. However, if an AI has obtained the MA's prior consent under §42(2)(b), the institution may use its own method to apportion its total regulatory reserve for general banking risks and collective provisions between the various approaches used. This would only be the case if the institution can justify that there is a valid reason for using such a method.

8. ***IRB use test*** [30]

Q62.	**What is the rationale behind the IRB use test?**
A62.	The IRB use test is based on the concept that supervisors can take additional comfort in the credit risk components generated by a bank's rating system where such components play an essential role in how the bank measures and manages risk in its businesses. If a bank were to use the credit risk components generated by its rating system solely for regulatory capital purposes, this could create an incentive for the

[30] The requirements regarding the track records in using a rating system set out in §(1)(b)(v) and (vi) and 2(b) of Schedule 2 are collectively referred to as the "IRB use test" herein.

	bank to minimize its capital requirements artificially, rather than produce an accurate measurement of those components. Moreover, a bank would have less incentive to keep the credit risk components accurate and up-to-date, whereas if those components are employed in the bank's internal decision-making processes, this will automatically create an incentive for the bank to ensure the quality and robustness of the rating system generating such components. In such circumstances, the MA considers that the IRB use test plays a key role in ensuring and promoting the accuracy, robustness and timeliness of the credit risk components generated by an AI's rating system, confirms the institution's confidence in those components and allows the MA to place more reliance on the institution's rating system and thus on the adequacy of its regulatory capital.
Q63.	**For what period of time will the MA expect an AI to have been using its rating system prior to the institution adopting the IRB approach for regulatory capital purposes?**
A63.	In general, any AI that seeks to use the IRB approach is required to have a credible track record of at least 3 years in using its rating system for the relevant exposures (which should be broadly consistent with the minimum requirements set out in the BCR relating to the use of the IRB approach) prior to the institution becoming qualified to use the relevant IRB approach. The MA will nevertheless take into account all relevant circumstances in deciding for what period of time (lengthier or shorter than 3 years) an AI should use its rating system, prior to it adopting the IRB approach.
Q64.	**If an AI's rating system has been developed by its parent bank and used at the group level for a certain period of time, will the institution be allowed to observe a shorter use test period than would otherwise be required?**
A64.	An AI is required to satisfy the IRB use test in Hong Kong for a minimum period of 3 years. Hence, even if an AI's rating system developed by its parent bank has been used at the group level for some time, the MA would still expect the institution to be able to meet the 3-year use test requirement in Hong Kong.
Q65.	**If an AI refines or modifies its rating system during the use test period, does the use test period have to start again from the date of the refinement or modification?**
A65.	Generally, refinements or modifications to an AI's rating system will not render the institution non-compliant with the IRB use test. The use test period will usually only have to start again if the refinements or modifications involve a significant change in the design or operation of an AI's rating system that substantially alters the ways the institution uses the internal ratings and default and loss estimates generated by the rating system.
Q66.	**Where an AI maintains more than one rating system for the same portfolio of exposures (e.g. one for its regulatory capital calculation and another for benchmarking), how will the MA assess the institution's compliance with the IRB use test?**

A66.	In assessing whether or not an AI's rating system has satisfied the IRB use test, the MA will consider the extent of the institution's use of the rating system as a whole, rather than applying the use test to individual models separately.
Q67.	**If an AI intends to start using its rating system for different portfolios (or segments) of exposures on different dates (e.g. phased implementation by business units), on what date does the use test period start?**
A67.	The MA would consider it reasonable for an AI to treat the use test period for its rating system as starting on the date the rating system is used for a substantial portion (say, at least 50%) of the exposures in respect of which it intends to adopt the IRB approach.
Q68.	**What is the meaning of the term "essential role" in §1(b)(v) and (vi) of Schedule 2?**
A68.	"Essential role" means that the information generated by an AI's rating system should be used in such a way as to exert a direct and observable influence on the institution's internal decision-making processes. Where the internal ratings and default and loss estimates generated by the rating system are only used by an AI as auxiliary or reference information, the rating system will not normally be considered as playing an "essential role" for the purposes of §1(b)(v) and (vi) of Schedule 2.
Q69.	**[31] What are the specific functions or areas in which an AI is expected to use the internal ratings and default and loss estimates generated by its rating system for internal decision-making purposes (see also A70 below)?**
A69.	Internal ratings and default and loss estimates generated by the rating system of an AI using the IRB approach must play an essential role in the credit approval, risk management, internal capital allocation and corporate governance functions of the AI. Rating systems and estimates designed and implemented exclusively for the purpose of qualifying for the IRB approach and used only to provide IRB inputs are not acceptable. To elaborate on this principle-based requirement, the HKMA has, in section 5.4.2 of the SPM module CA-G-4 on "*Validating Risk Rating Systems under the IRB Approach*", set out a list of specific areas or functions in which internal ratings and default and loss estimates generated by an AI's rating system are expected to be used . These areas or functions include— (a) credit approval; (b) credit monitoring (e.g., more frequent rating review for riskier obligors); (c) analysis and reporting of credit risk information, including that used in the exercise of oversight by the board of directors and senior management; (d) pricing; (e) setting of limits for individual exposures and portfolios;

[31] Reference: Basel Framework CRE36.60.

	(f) determining provisioning; (g) modelling and management of economic capital; (h) assessment of internal capital adequacy in respect of credit risk; (i) assessment of risk appetite; (j) formulating business strategies (e.g. acquisition strategy for new exposures and collection strategy in respect of problem loans); (k) setting of, and assessment against, profitability and performance targets; (l) determining performance-related remuneration (e.g. for staff responsible for rating assignment and approval); and (m) other aspects of risk management (e.g., information technology systems, skills and resources, and organisational structure).
Q70.	**[32] Is an AI required to use its rating system in all the areas or functions specified in A69 above?**
A70.	To satisfy the IRB use test, an AI is generally required to demonstrate that it has been using the internal ratings and default and loss estimates generated by its rating system for internal decision-making purposes for at least 3 years in the majority of the areas or functions set out in A69 above, which should include (a) credit approval, (b) credit monitoring, and (c) reporting of credit risk information (including to the institution's board of directors and senior management). An AI using the advanced IRB approach must demonstrate that it has been estimating and employing LGDs and EADs in a manner that is broadly consistent with the minimum requirements for use of own estimates of LGD and EAD for at least the three years prior to qualification.
Q71.	**Is an AI required to use exactly the same default and loss estimates generated by its rating system for both its regulatory capital calculation and all internal purposes?**
A71.	Compliance with the IRB use test does not necessarily mean that an AI will have to use exactly the same default and loss estimates for both its regulatory capital calculation and all internal purposes. For example, pricing models are likely to use a PD relevant to the life of an asset, instead of using a PD with a 1-year horizon. Where such differences exist, the institution must document them and be prepared for demonstrating their reasonableness (e.g. to reflect legitimate risk management needs). Based on this guiding principle, an AI is expected to— (a) justify any differences in, and otherwise demonstrate consistency between, the internal ratings and default and loss estimates used for regulatory capital

[32] Reference: Basel Framework CRE36.61.

	calculation purposes and those used for the institution's internal decision-making purposes. Such comparison should cover both inputs (including rating criteria and risk factors) to, and outputs (such as ratings and risk estimates) from, the institution's rating system; (b) provide qualitative and quantitative anslyses of the logic and rationale for the differences; and (c) have its credit risk control unit review, and its senior management approve, the justifications for the differences.
Q72.	**What evidence will the MA require from AIs regarding the use of their rating systems?**
A72.	AIs will need to demonstrate to the satisfaction of the MA that they satisfy the IRB use test. Whilst the use of internal ratings and default and loss estimates for internal decision-making purposes may vary from institution to institution and by portfolio type, the MA will normally expect an AI applying to use, or using, the IRB approach to have the following evidence to demonstrate that it satisfies the IRB use test— (a) the use of internal ratings and default and loss estimates should be articulated in the policies relating to given areas or functions as referred to in A69 and A70 above as approved by the institution's board of directors or senior management; (b) for each area (or function) of use, there should be a clear indication that the information generated by the institution's rating system plays an essential role in its internal decision-making process and that there is a clear relationship between the information generated by the rating system and the decisions made or actions taken (such indication should be able to facilitate the internal audit review as required in item (d) below); (c) users should be able to articulate how the information generated by the institution's rating system is used, or the role played by the information, in the institution's internal decision-making process; and (d) regular internal audit reviews should be conducted to verify whether or not the use of the information generated by the institution's rating system complies with the institution's approved policies referred to in item (a) above. Any documentation of internal challenges to the accuracy, robustness and timeliness of internal ratings and default and loss estimates generated by an AI's rating system during the internal decision-making process, together with any follow-up actions taken, will also be regarded as evidence which demonstrates the institution's commitment to the validity of its rating system for internal use purposes.

9. ***Stress-testing***

Q73.	**What types of stress tests should be conducted by an AI for the purpose of §1(h) of Schedule 2?**
A73.	An AI using the IRB approach is expected to conduct general stress tests which involve possible events or future changes in economic conditions that could have unfavourable effects on the institution's credit exposures. Examples of stress scenarios that may be used include economic or industry downturns, market risk events (such as currency, stock or bond market crises) and liquidity squeezes. At a minimum, a specific stress test should be conducted to assess the effect of a mild recession on the AI's estimates of credit risk components. In devising the stress scenario for this specific stress test, the institution may have regard to the conditions experienced in any 2 or more consecutive quarters of negative GDP growth occurring in Hong Kong during the period from 2001 to 2003 and/or occurring during other financial crises relevant to the institution, e.g. the global financial crisis in 2007/2008 or the subsequent European sovereign debt crisis. The impact of the stress scenario should be assessed based on a 1-year time horizon and take into account the lag effect of the recession on the institution's credit exposures. The purpose of this specific stress test is to assess whether the assumptions and data used in the institution's rating system are prudent enough to ensure that its regulatory capital calculated under the IRB approach is sufficient to cover any potential loss arising in a period of mild recession. The MA would expect to be consulted by the institution on the choice of the stress scenario to be used for this specific stress test. For more details about the use of stress tests, see section 12 of the SPM modules CA-G-4 on "*Validating Risk Rating Systems under the IRB Approach*" and IC-5 on *"Stress-testing*".
Q74.	**[33] Is there any guidance on the sources of information for the stress tests for the purpose of §1(h) of Schedule 2?**
A74.	Whatever method of stress-testing is used, an AI must include a consideration of the following sources of information. (a) The institution's own data should allow estimation of the ratings migration of at least some of its exposures. (b) The institution should consider information about the impact of smaller deterioration in the credit environment on the institution's ratings, giving some information on the likely effect of bigger, stress circumstances. (c) The institution should evaluate evidence of ratings migration in external ratings. This would include the institution broadly matching its buckets to rating categories.

[33] Reference: Basel Framework CRE36.52.

Q75.	**How frequently should an AI conduct its stress tests for the purpose of §1(h) of Schedule 2?**
A75.	Generally, an AI is expected to conduct its stress tests referred to in A73 above at least on an annual basis or more frequently if this is warranted by significant changes in the business strategies of the AI or in the external environment in which it operates.
Q76.	**What would be the consequences for an AI which fails to address any shortfall in its regulatory capital identified by the specific stress test referred to in A73 above?**
A76.	The two most likely consequences are that— (a) the MA may refuse to grant an approval to, or may withdraw an approval from, an AI for the use of the IRB approach if he is satisfied that the institution fails to operate its rating system in a prudent and consistently effective manner as required under §1(b)(iii) of Schedule 2; and (b) the MA may consider exercising his power under §97F of the Banking Ordinance to vary any capital requirement rule applicable to an AI, including by increasing all or any of the institution's CET1 capital ratio, Tier 1 capital ratio and Total capital ratio (see item B6.2 in Annex B of the SPM module CA-G-5 on "*Supervisory review process*".
Q77.	**[34] Should AIs consider climate-related risk drivers as possible events or future changes when performing stress tests used in the assessment of capital adequacy?**
A77.	Climate-related financial risks may significantly impact an AI's credit exposures within the assessment period. An AI should refer to FAQ1 attached to Basel Framework CRE36.50 for stress-testing purposes.

10. ***Parallel calculations***

Q78.	**What is the period of time for which the MA requires an AI to carry out parallel calculations for the purpose of demonstrating the suitability and capability of its rating system for using the IRB approach?**
A78.	The MA would normally expect an AI to carry out parallel calculations for a period of 4 consecutive calendar quarters (i.e. 1 year) before using the IRB approach for capital calculation. For example, an AI adopting the advanced IRB approach on 1 January 2018 would be required to carry out parallel calculations based on the STC approach, as the case may be, and the advanced IRB approach for the year 2017, covering the calendar quarter end dates of 31 March, 30 June, 30 September and 31 December.

[34] FAQs inserted to Basel Framework CRE36.50.

	The MA may, however, consider extending the period of an AI's parallel calculations if the quality of the institution's parallel calculations is not satisfactory, any subsequent slippage is identified in the institution's implementation efforts, or any serious weaknesses are found in the institution's rating system.
Q79.	**Is an AI applying for switching the IRB calculation approach from the foundation IRB approach to the advanced IRB approach to calculate its credit risk for corporate and sovereign exposures of a particular IRB adoption class required to carry out parallel calculations?**
A79.	Yes. The purpose of parallel calculations is to enable an AI to demonstrate to the MA's satisfaction the suitability and capability of its rating system for the calculation of the institution's credit risk and to familiarize itself with the use of its rating system prior to it implementing the IRB approach. As using the advanced IRB approach will require an AI to have a more sophisticated system for generating its own estimates of LGD and EAD for its corporate and sovereign exposures, it is both prudent and reasonable to require the institution to provide similar parallel calculations to the MA to prove its readiness to migrate to a more advanced approach. In such a situation, the parallel calculations will consist of one set of calculations using the foundation IRB approach (i.e. the current approach used by the institution) and the other using the advanced IRB approach (i.e. the approach the institution is seeking the MA's prior consent to use). To be consistent with the time period referred to in A78 above, the MA would expect an AI to carry out parallel calculations for a period of 4 consecutive calendar quarters (i.e. 1 year) before migrating from the foundation IRB approach to the advanced IRB approach for regulatory capital calculation. Without limiting the considerations of the MA, a shorter timeframe (unlikely to be less than 2 consecutive calendar quarters) may be agreed by the MA after considering the relevant factors and evidence, for example, the robustness of the change management in respect of the relevant regulatory reporting.
Q80.	**In what form, and using what type of data, should an AI provide its parallel calculations to the MA?**
A80.	Generally, an AI should provide 2 sets of calculations to the MA, one based on the approach it currently adopts and the other based on the IRB approach it is applying to use, using the *Return of Capital Adequacy Ratio of an Authorized Institution Incorporated in Hong Kong* (MA(BS)3) ("the CAR return"). As regards the calculations derived from the IRB approach, the institution should complete Part IIIc of the CAR return and other relevant items relating to the use of that IRB approach under other parts of the CAR return (e.g. Division B of Part I for the calculation of the output floor and various items in Part IIId for the calculation of the risk-weighted amount for securitization exposures if SEC-IRBA is used). If an AI encounters any practical difficulties in completing the CAR return for parallel calculation purposes, it should consult with the MA to discuss any alternative arrangement.