HONG KONG MONETARY AUTHORITY 香港金融管理局		
Supervisory Policy Manual		
CA-G-5	**Supervisory Review Process**	~~V.1 – 10.11.06~~ V.2 - Draft

This module should be read in conjunction with the Introduction and with the Glossary, which contains an explanation of abbreviations and other terms used in this Manual. If reading on-line, click on blue underlined headings to activate hyperlinks to the relevant module.

Purpose

To describe the MA's approach to conducting the SRP, including the criteria and standards used for evaluating an AI's capital adequacy and, where applicable, the effectiveness of its CAAP, for the purposes of determining its minimum CAR under §101(1) the Banking Ordinance

Classification

A statutory guideline issued by the MA under §16(10) of the Banking Ordinance

Previous guidelines superseded

This is a new guideline.

Application

To all locally incorporated AIs

Structure

1. Introduction

1.1 Terminology

1.1.1 Abbreviations and other terms used in this module have the following meanings:

- "basic approach", in relation to the calculation of an AI's credit risk, means the method of calculating that risk as set out in Part 5 of the Banking (Capital) Rules;
- "CAAP" means the capital adequacy assessment process that an AI uses to identify and measure the risks it faces and to assess how much capital is needed to support those risks;
- "CAR" means the capital adequacy ratio as defined in §2(1) of the Banking Ordinance;
- "capital add-on", in relation to the minimum CAR set by the MA on an AI under §101(1) of the Banking Ordinance, means that portion of the minimum CAR which is in excess of the statutory minimum of 8%. As an example, if the MA requires an AI to observe a minimum CAR of 10%, the capital add-on that the AI is required to maintain above the statutory minimum is 2%;
- "Banking (Capital) Rules" mean those rules made by the MA under §98A(1) of the Banking Ordinance prescribing the manner in which the CAR of AIs shall be calculated;
- "IMM approach", in relation to the calculation of an AI's market risk, means the method of calculating that risk under the internal models approach as set out in Divisions 11 and 12 of Part 8 of the Banking (Capital) Rules;

- "internal capital", in relation to an AI, means the amount of capital which the AI holds and allocates internally as a result of the AI's assessment of the risks faced by the AI;

- "IRB approach", in relation to the calculation of an AI's credit risk, means the method of calculating that risk under the internal ratings-based approach as set out in Part 6 of the Banking (Capital) Rules;

- "minimum capital requirements" mean the minimum standards and requirements for calculating the amount of capital that an AI should hold in respect of its credit, market and operational risks as prescribed in the Banking (Capital) Rules;

- "SRP" means the supervisory review process conducted by the MA for the purposes of evaluating and monitoring the capital adequacy of individual AIs, and of determining their minimum CAR under §101(1) of the Banking Ordinance;

- "STM approach", in relation to the calculation of an AI's market risk, means the method of calculating that risk under the standardized (market risk) approach as set out in Part 8 of the Banking (Capital) Rules; and

- "statutory minimum" means the minimum CAR of 8% as specified in §98(1) of the Banking Ordinance.

1.2 Background and scope

1.2.1 As part of the revised capital adequacy framework, the MA ~~will~~ conducts the SRP on individual AIs to assess their capital adequacy and determine if they should hold additional capital to cater for risks that are not covered or adequately covered under the minimum capital requirements.

1.2.2 The basic elements of the SRP are already embedded in the MA's ~~existing~~ supervisory framework. In particular, with the power conferred upon him under §101(1) of the Banking Ordinance, the MA has for a long time required AIs to observe a minimum CAR in excess of the statutory minimum, the level of which is subject to variation depending on the risk profile of individual AIs. This has been with the aim of assigning a minimum CAR to each AI that reflects more precisely the range of risks to which it is potentially exposed. Thus, the implementation of the SRP is~~will be~~ more of an elaboration and refinement process, rather than a radical change of existing practices.

1.2.3 A major feature introduced under the SRP is the use by the MA of a more detailed and rigorous assessment framework for setting the minimum CAR of individual~~each~~ AIs, taking into account their overall risk profile and risk management systems~~ of individual AIs~~, the extent to which they are exposed to risks that are outside the realm of the minimum capital requirements and, where applicable, the effectiveness of their CAAP.

1.2.4 This module sets out the approach that the MA ~~will~~ adopts in conducting the SRP, including a description of:

- the main principles and objectives underlying the SRP;
- the key assessment factors that the MA ~~will~~ considers in determining the minimum CAR of individual AIs, and the supervisory arrangements and procedures associated with the assessment;
- the supervisory approach to reviewing the CAAP of individual AIs, including the standards and requirements expected of them; and
- the process for ongoing monitoring of AIs' capital adequacy and compliance with the Banking (Capital) Rules.

1.2.5 This module should be read in conjunction with other supervisory guidelines, including the modules of the Supervisory Policy Manual, issued by the MA that are relevant to the assessment of AIs' capital adequacy (see a list of such guidelines in **Annex A**).

1.3 Main objectives and principles

1.3.1 The SRP is an important and integral part of the revised capital adequacy framework. Its main objectives are to:

- facilitate supervisory monitoring of the capital adequacy of AIs to support the risks in their business activities;
- encourage AIs to enhance their risk management techniques for monitoring and controlling such risks; and
- provide the impetus for AIs to adopt more active capital planning and management practices.

1.3.2 In conducting the SRP, the MA is guided by the following principles which would help achieve the objectives mentioned in para. 1.3.1:

- AIs should have an internal process for assessing their overall capital adequacy in relation to their risk profile and a strategy for maintaining the required level of capital ("the first SRP principle");
- the MA has the responsibility of reviewing AIs' internal capital adequacy assessments and determining whether the resultant capital position is adequate ("the second SRP principle");
- the MA expects AIs to operate above the statutory minimum and has the power to require AIs to do so ("the third SRP principle"); and

- the MA seeks to intervene at an early stage to prevent AIs' capital from falling below prudent levels ("the fourth SRP principle").

1.3.3 The manner in which the MA ~~will~~ applies~~y~~ the four SRP principles through the legal powers conferred upon him under the Banking Ordinance is elaborated in subsection 2.2.

1.4 Implementation

1.4.1 The MA has since~~Starting from~~ 1 January 2007 started~~, the MA will~~ conducting the SRP on AIs (including a review of the appropriateness of their minimum CAR) as part of the risk-based supervisory process. The scope and extent of applying the assessment standards and criteria under the SRP are~~will be~~ commensurate with the nature, size and complexity of the business operations of individual AIs.

1.4.2 T~~For the avoidance of doubt, t~~he minimum CAR set by the MA before 1 January 2007 has~~will~~ continued to apply to AIs unless~~until~~ otherwise advised by the MA under §101(1) of the Banking Ordinance, as a result of the SRP conducted. As the determination of the minimum CAR for individual AIs is~~will be~~ subject to the SRP, the MA's practice of having a capital floor of 10% has~~will~~ ceased, meaning that it is now possible for an AI to be assigned a minimum CAR with a capital add-on of less than 2% if this is so justified by the MA's assessment.

1.4.3 Under the SRP, AIs are required to have a comprehensive process for allocating their internal capital against the wide range of risks they are faced with, the effectiveness of which is subject to the MA's assessment. This formal process for internal capital allocation is referred to as the CAAP.

1.4.4 The SRP to be conducted on AIs, and any resultant change in their minimum CAR, ~~will~~ remain driven by the MA's assessment of their capital adequacy, although AIs' CAAP capabilities may become a more prominent factor

for consideration in due course. This recognises that ~~only the large international banks currently conduct internal capital allocation, and~~ most of the AIs, in particular the smaller ones, are still in the process of improving their proficiency in conducting internal capital allocation and ~~will need more time and resources to develop and~~ enhancinge their capital planning and assessment practices.

1.4.5 As it may not be cost-effective for each and every AI with small and simple operations to develop elaborate systems for conducting the CAAP, those that have been approved by the MA to adopt the basic approach permanently for the calculation of credit risk arewill not normallybe assessed for compliance with the CAAP standards set out in section 4.[1] Nevertheless, in setting the minimum CAR of these AIs, the MA ~~will~~ takes into account the fact that their capital management practices may not comply fully with the supervisory standards.

1.4.6 Other AIs arewill be required to develop their systems for conducting the CAAP in line with the prescribed standards. While the MA haswould not expected AIs to have a well developed CAAP immediately after 1 January 2007, they should initiate efforts to put in place the basic elements of the CAAP (see para. 4.3.3 for more details), and make steady progress towards enhancing the process over time. The MA haswill discussed with individual AIs their plan for implementing the CAAP standards, and will continue to monitor such progress where necessaryon an ongoing basis.

2. The MA's approach to supervisory review

2.1 General

2.1.1 This section provides an overview of the legal backing that the MA derives from the Banking Ordinance for

[1] This does not however absolve such AIs from the responsibility of ensuring that there is sufficient capital to meet their business and operational needs.

determining the minimum CAR of AIs through the SRP (see subsection 2.2) and the key components that make up this process (see subsection 2.3).

2.1.2 Other supervisory arrangements relevant to the conduct of the SRP, including the application of such arrangements to local banking groups and foreign bank subsidiaries, and the procedures for AIs to make representations and appeals where necessary are respectively set out in subsections 2.4 to 2.7.

2.2 Legal framework

2.2.1 The Banking Ordinance provides the MA with sufficient powers to enforce the four SRP principles set out in subsection 1.3.

2.2.2 Under Para. 6 of the Seventh Schedule to the Banking Ordinance, AIs are obliged to satisfy the MA that they maintain, on and after authorization, adequate financial resources (whether actual or contingent) for the nature and scale of their operations. This provides the basis for AIs to conduct internal capital assessments under the CAAP (i.e. the first SRP principle) and the MA to review such assessments (i.e. the second SRP principle) so as to ascertain that AIs have adequate financial resources.

2.2.3 While §98(1) of the Banking Ordinance requires AIs to maintain a minimum CAR of 8% (i.e. the statutory minimum) in accordance with §98(2) and the rules made by the MA under §98A(1), §101(1) empowers the MA to vary the minimum CAR of individual AIs by increasing the ratio to not more than 16%.[2] This enables the MA to require an AI to maintain a minimum CAR in excess of the statutory minimum, after consultation with the AI, based on his assessment of its capital adequacy (i.e. the third SRP principle).

[2] As a result of the Banking (Amendment) Ordinance 2005, the ceiling for the setting of minimum CAR by the MA under §101(1) of the Banking Ordinance is changed to 16% for all locally incorporated AIs through raising the ceiling of 12% for locally incorporated banks.

2.2.4 Consistent with the fourth SRP principle, all AIs are required to observe a non-statutory trigger ratio (set at a level of at least 0.5% above their minimum CAR). The trigger ratio is intended to provide a cushion to reduce the risk of an AI breaching its minimum CAR and to provide an early warning signal of deterioration in its capital adequacy. The MA has~~will~~ continued to use this supervisory tool to monitor AIs' minimum CAR after the SRP was~~is~~ implemented.

2.2.5 The fourth SRP principle is further reinforced by §§99(1) and 100(1) of the Banking Ordinance which respectively require AIs to notify the MA of any breach of their minimum CAR and to institute prompt remedial action, as specified by the MA, to restore their capital level.

2.2.6 Failure of an AI to meet the statutory requirements mentioned in this subsection may call into question whether the AI continues to satisfy the authorization criterion stipulated in Para. 6 of the Seventh Schedule to the Banking Ordinance.

2.2.7 Under §§99(3) and 100(~~3~~5) of the Banking Ordinance, every director, chief executive and manager of an AI has the legal responsibility to ensure that the AI complies with §§99(1) and 100(1) of the Ordinance. Such persons may commit an offence liable for prosecution if the AI fails to comply with the requirements.

2.2.8 If an AI is aggrieved by the MA's decision to increase its minimum CAR under §101 (1) of the Banking Ordinance, the AI may appeal to the Chief Executive in Council against that decision under §132A(1) of the Ordinance. Notwithstanding that an appeal has been or may be made, the increase in the AI's minimum CAR will take effect according to the day specified in the notice served on the AI under §101(1) of the Ordinance.

2.3 Key components of SRP

2.3.1 The SRP conducted on an AI typically consists of the following key components:

- Review of the AI's risk profile – the MA ~~will~~ forms a view of the AI's overall risk profile as part of the ongoing risk-based supervision, with the purpose of assessing those risk and control factors that may result in additional capital for the AI;

- Review of the AI's CAAP – for AIs that are subject to the CAAP standards set out in section 4, the MA ~~will~~ assesses their CAAP as part of the SRP. This review ~~will~~ includes a consideration of the assumptions, methodology, coverage and outcome of an AI's CAAP, with a view to ascertaining the adequacy and effectiveness of the AI's CAAP;

- Determination of the AI's minimum CAR and/or other supervisory measures – the MA ~~will~~ considers whether the AI's minimum CAR remains appropriate or needs to be changed by applying the assessment framework set out in section 3 to the results and findings gathered from the above reviews. The MA may also require the AI to take other actions to rectify any system or control deficiencies identified during the SRP. The assessment results, including any supervisory measures proposed, are ~~will be~~ subject to an independent review process as described in subsection 2.7;

- Communication of SRP results to the AI – after completion of the SRP, the MA ~~will~~ discusses with the AI the results of his assessment, including any areas of concern which may lead to an increase in its minimum CAR. The MA will explain in sufficient detail the factors which have led to his assessment and recommend what actions the AI should take to address the concerns. If there is a proposed increase in the minimum CAR, the AI will be consulted (with the opportunity to make representations) before a decision is finalised. An

appeal mechanism is also available under §132A(1)(h) of the Banking Ordinance;

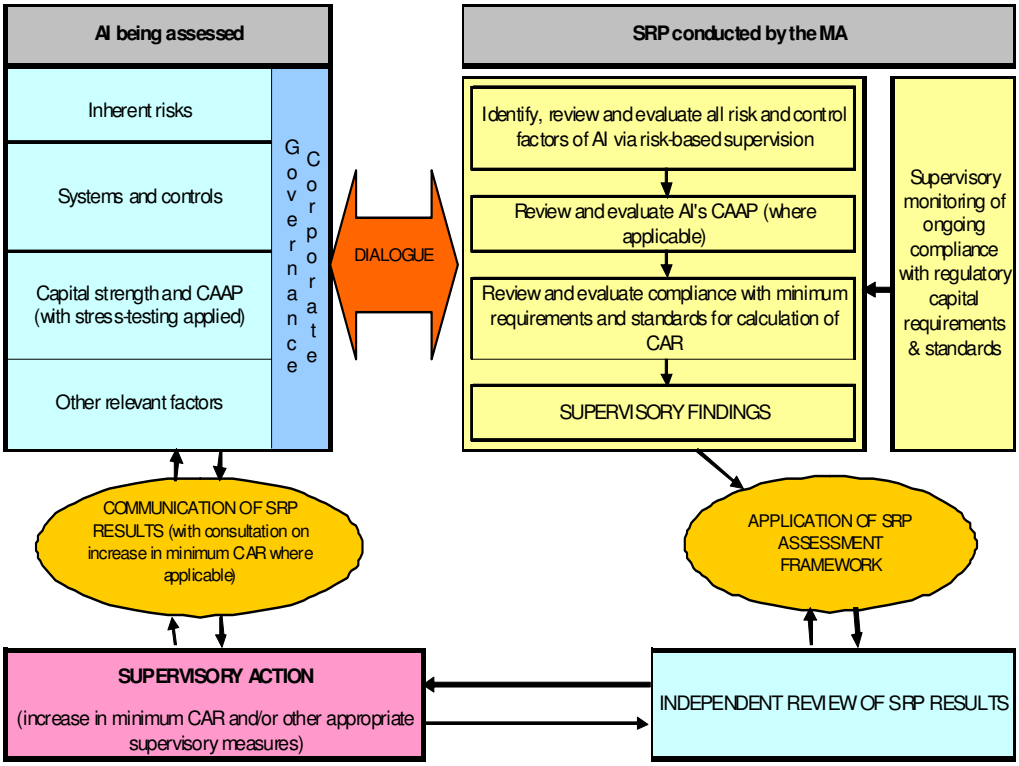
- Ongoing monitoring of the AI's capital adequacy – this is to monitor that the AI complies with the various regulatory capital standards and requirements applicable to it on a continuing basis. The MA ~~will~~ updates the AI's risk profile regularly, taking into account its progress in addressing any supervisory concerns raised or other events which may significantly affect the AI's ability to monitor and ensure compliance with the Banking (Capital) Rules.

2.3.2 The SRP ~~will~~ generates an active dialogue with the AI concerned regarding the fulfilment of capital adequacy and risk management standards, through which the MA seeks to:

- gain deeper insights into the AI's overall control and risk management framework;
- establish a closer understanding of how the AI approaches the risks that are not covered under the minimum capital requirements and the amount of internal capital allocated to them;
- understand the mechanisms the AI has maintained for identifying, measuring, monitoring, ~~and~~ controlling, mitigating and reporting its risks; and
- assess the extent to which the AI's CAAP, where applicable, may be relied upon as a factor to be considered in the MA's evaluation of the AI's capital adequacy.

2.3.3 **Diagram 1** below provides a graphical presentation of the key components of the SRP described above.

Diagram 1 – Key Components of SRP



2.4 Supervisory arrangements

2.4.1 The MA ~~will~~ performs the SRP on each AI regularly (normally once a year) as part of his risk-based supervision. The scope of the SRP ~~will~~ covers all significant business activities of the AI, whether operating locally or overseas, on a solo and/or consolidated basis.

2.4.2 When carrying out the SRP, the MA ~~will~~ adopts a forward-looking approach to the extent that he will take stock of any significant changes (either arising from institutional or external conditions) to the AI's overall risk profile in the past year and assess how these changes will affect the AI and its business plans and prospects in the coming year. In doing so, the MA ~~will~~ takes into account the results of any offsite reviews and onsite examinations, and makes use of any relevant information obtained from various sources such as prudential

interviews, banking returns and routine supervisory contacts.

2.4.3 The MA ~~will~~ takes a proportionate approach when applying the SRP to AIs of varying size and complexity. In other words, the frequency, intensity and depth of the SRP will be determined by the potential risk that the AI poses to the supervisory objectives of the MA. For example, the MA may subject AIs with systemic importance to a more in-depth and comprehensive SRP. For AIs with less complex operations, the MA would not expect them to have sophisticated risk management systems and CAAP, and hence the SRP conducted on such AIs is likely to be less intense and frequent. In categorising AIs, the MA ~~will~~ takes account of factors such as the AI's business nature, scale of operations (i.e. size, risk profile and complexity), history of regulatory compliance and significance to financial stability or other supervisory objectives.

2.4.4 The SRP does~~will~~ not replicate the role of the Board and senior management of AIs. The primary responsibility for ensuring that an AI has adequate capital to support its risk profile still rests with its Board and senior management.

2.4.5 The SRP ~~will~~ includes a review of the appropriateness of the minimum CAR of an AI. The minimum CAR is~~will be~~ set on a solo basis to monitor the AI's capital adequacy on a standalone basis, unless the MA's prior approval is obtained for allowing the AI to consolidate some of its subsidiaries in the calculation of a solo-consolidated CAR (i.e. the AI will not be required to deduct its investment in those subsidiaries from its solo capital base) subject to the meeting of certain conditions. If the AI has one or more subsidiaries that are to be consolidated for capital adequacy purposes under §98(2A) of the Banking Ordinance, the minimum CAR will also be set on a consolidated basis. See Part 2 of the Banking (Capital) Rules for relevant provisions on the scope of application.

2.4.6 The MA may involve third parties to assist him in conducting the SRP. Under §59(2) of the Banking Ordinance, the MA has the power to require an AI, after consultation with the AI, to provide an auditors' report on such matters as he may specify for the performance of his functions under the Ordinance. The MA may exercise this power to commission an auditors' report when he considers that an independent assessment of the AI's capital adequacy or risk management processes is warranted. To avoid any potential conflict of interest, the external auditor(s) appointed by the AI for the purpose of preparing this report will be approved by the MA, and the appointed auditor(s) may not necessarily be the AI's existing auditor(s).

2.5 Application to local banking groups

2.5.1 The MA, as the home supervisor of a local banking group[3], ~~will~~ applies~~y~~ the SRP to the group as a whole, and ~~will~~ monitors the group's capital adequacy at the consolidated level.

2.5.2 The SRP ~~will~~ assesses all the major risks of the local banking group, whether arising from banking or non-banking activities (such as securities dealing or insurance-related business). Other risks to the group will also be captured, for example, where services such as IT, accounting, or payment and settlement functions are being provided or control functions are being exercised from outside the group on an outsourced basis.

2.5.3 The MA may allow a local banking group to develop a group CAAP covering the positions of its subsidiary AIs if their capital is centrally managed at the group level. In other words, such subsidiary AIs will not be required to establish their own CAAP on a standalone basis. However, those subsidiary AIs that are operating

[3] This refers to a banking group in which the bank holding company is a locally incorporated AI.

independently will still be required to develop their own CAAP.

2.5.4 The MA ~~will~~ sets a consolidated minimum CAR for a local banking group and a solo minimum CAR for each of the AIs within the group based on their individual risk profile. The practice of setting the same CAR at both the solo and consolidated levels will continue unless the results of the SRP justify otherwise.

2.5.5 As an illustration, if the bank holding company of a local banking group is a retail bank with a fairly diversified risk profile but some of its significant banking subsidiaries are engaged in specialised and high risk business activities (e.g. foreign exchange and derivatives trading) with decentralised risk management systems, there may be a case for setting the solo minimum CAR of those banking subsidiaries at a level higher than that for the bank holding company. Whether the consolidated minimum CAR of the bank holding company will also be set at a higher level than its solo minimum CAR ~~will~~ depends on the impact of the operations of the banking subsidiaries on the group's consolidated financial position.

2.5.6 Where a local banking group has overseas branches or subsidiaries the activities of which are significant to the group as a whole, the MA may seek the comments of relevant host supervisors on the financial and operating soundness of those branches or subsidiaries in their jurisdictions in the course of conducting the SRP for the consolidated banking group.

2.6 Application to foreign bank subsidiaries

2.6.1 In the case of AIs which are subsidiaries of foreign banks, the MA ~~will~~ continues to exercise his legal duty under the Banking Ordinance, through the setting of minimum CAR, to require such AIs to maintain adequate capital in Hong Kong.

2.6.2 The evaluation of the capital adequacy of foreign bank subsidiaries under the SRP ~~will~~ however takes into

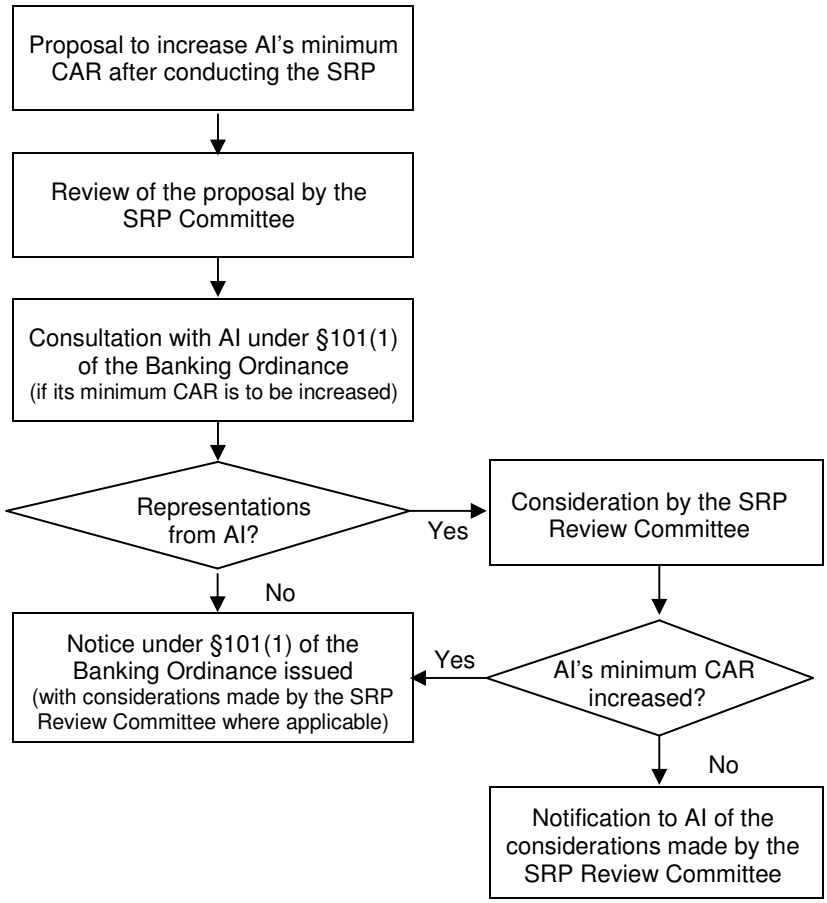
account the strength and availability of parental support as well as other relevant information from the home supervisor of the foreign banking group. This may include, for example, the results of the home supervisor's consolidated assessment (including an evaluation of the group CAAP or capital allocation systems and the group support on subsidiaries) of the banking systems and processes used at the group level and any developments or supervisory actions that may affect the calculation of regulatory capital requirements for the subsidiaries in Hong Kong.

2.6.3 A foreign bank subsidiary that is subject to the CAAP standards may employ the CAAP methodology of its parent bank, but will need to explain to the MA how the data and methodology have been adjusted to reflect its local business strategy and the risks to which it is exposed in Hong Kong (see subsection 4.6 for more details).

2.7 Representations and appeals

2.7.1 The MA has~~will~~ established a formal mechanism for ensuring the quality, objectivity and consistency of the assessments performed under the SRP in respect of the determination of the minimum CAR of individual AIs and for considering representations from AIs seeking a review of the determination. An outline of the mechanism is shown in **Diagram 2** below:

Diagram 2 – Independent Review of SRP Results



2.7.2 The SRP Committee is established to review the assessments conducted on individual AIs under the SRP, and to advise the MA on the appropriateness of any proposed increase in the minimum CAR and/or supervisory measures. The Committee is chaired by an Executive Director, and includes at least two senior staff members within the Banking Departments of the HKMA who have not been involved in conducting the SRP in question.

2.7.3 The SRP Committee ~~will~~ evaluates all relevant facts and arguments in support of the recommendations, and ~~will~~ analyses and compares the assessment results of

different AIs to ensure the consistency and quality of assessments made. Before putting forward any recommendations for the MA's consideration, the Committee may direct the relevant supervisory team to provide additional information or carry out further work to resolve any queries or concerns raised.

2.7.4 The SRP Review Committee is established to consider representations from individual AIs in respect of a proposed increase in their minimum CAR, and to determine whether the minimum CAR should be increased in the light of those representations and other relevant circumstances of each case. The Committee is chaired by a Deputy Chief Executive, and includes at least four senior staff members within the Banking Departments of the HKMA who have neither been involved in conducting the SRP in question nor participated in considering the SRP under the SRP Committee.

2.7.5 Generally, an AI is given 30 days to make written representations following the AI's receipt of the MA's notice in relation to an increase in its minimum CAR. To ensure that the Board and senior management of the AI have fully considered the case, the representations should be accompanied by a certified copy of the minutes of meeting in which the Board (or a designated committee) approved the submission of the representations.

2.7.6 If necessary, the AI may request in writing for an extension of the time for submitting the representations by providing reasons to justify the request within the thirty-day consultation period. The Chairman of the SRP Committee may grant an extension of up to 14 days for filing the representations.

2.7.7 The AI should set out clearly in its written representations the grounds for seeking a review of the determination of the minimum CAR and provide all relevant facts and information that the AI wishes the MA to take into account when considering its representations. The SRP

Review Committee may, at its discretion, allow the AI to make oral representations, as a supplement to its written representations. The purpose of oral representations is to allow the AI to elaborate on its written representations.

2.7.8 As a general rule, the representations should not delay or impede any formal or informal supervisory actions in progress, or affect the MA's authority to take any supervisory actions against the AI concerned. Under exceptional circumstances, the SRP Review Committee may relieve the AI from complying with some of the supervisory actions while the representations are being considered.

2.7.9 If the MA has not received any written representations from the AI within the thirty-day consultation period or if the SRP Review Committee supports an increase in the minimum CAR (no matter whether the increase is as proposed or at a reduced level) after considering the AI's representations, the MA will, by notice in writing served on the AI, increase the AI's minimum CAR pursuant to §101(1) of the Banking Ordinance. The AI will also be informed of the considerations made by the SRP Review Committee, where applicable.

2.7.10 If the AI is still aggrieved by the MA's decision, it may appeal against the decision using the appeal mechanism provided by §132A(1) of the Ordinance.

3. Supervisory review of capital adequacy

3.1 General

3.1.1 This section focuses on the major elements of the assessment framework adopted by the MA under the SRP, including the key assessment factors that are~~will be~~ considered in evaluating AIs' capital adequacy (see subsection 3.2 below) and the approach towards the setting of their minimum CAR (see subsection 3.3 below).

3.1.2 Conducted as part of the MA's ongoing supervision of AIs, the SRP is closely related to the risk-based supervisory framework currently adopted by the MA. Subsection 3.4 describes their relationship and how the assessment results under the SRP may be integrated with the risk-based supervisory process. Also relevant to the SRP are:

- the MA's approach to using stress tests ~~and scenario analyses~~ in evaluating an AI's capital adequacy and its ability to withstand risk;
- the emphasis placed by the MA on encouraging AIs to adopt international risk management standards and best practices through the issue of supervisory guidance; and
- the process of monitoring AIs' capital adequacy on a continuing basis.

These aspects are respectively explained in subsections 3.5 to 3.7.

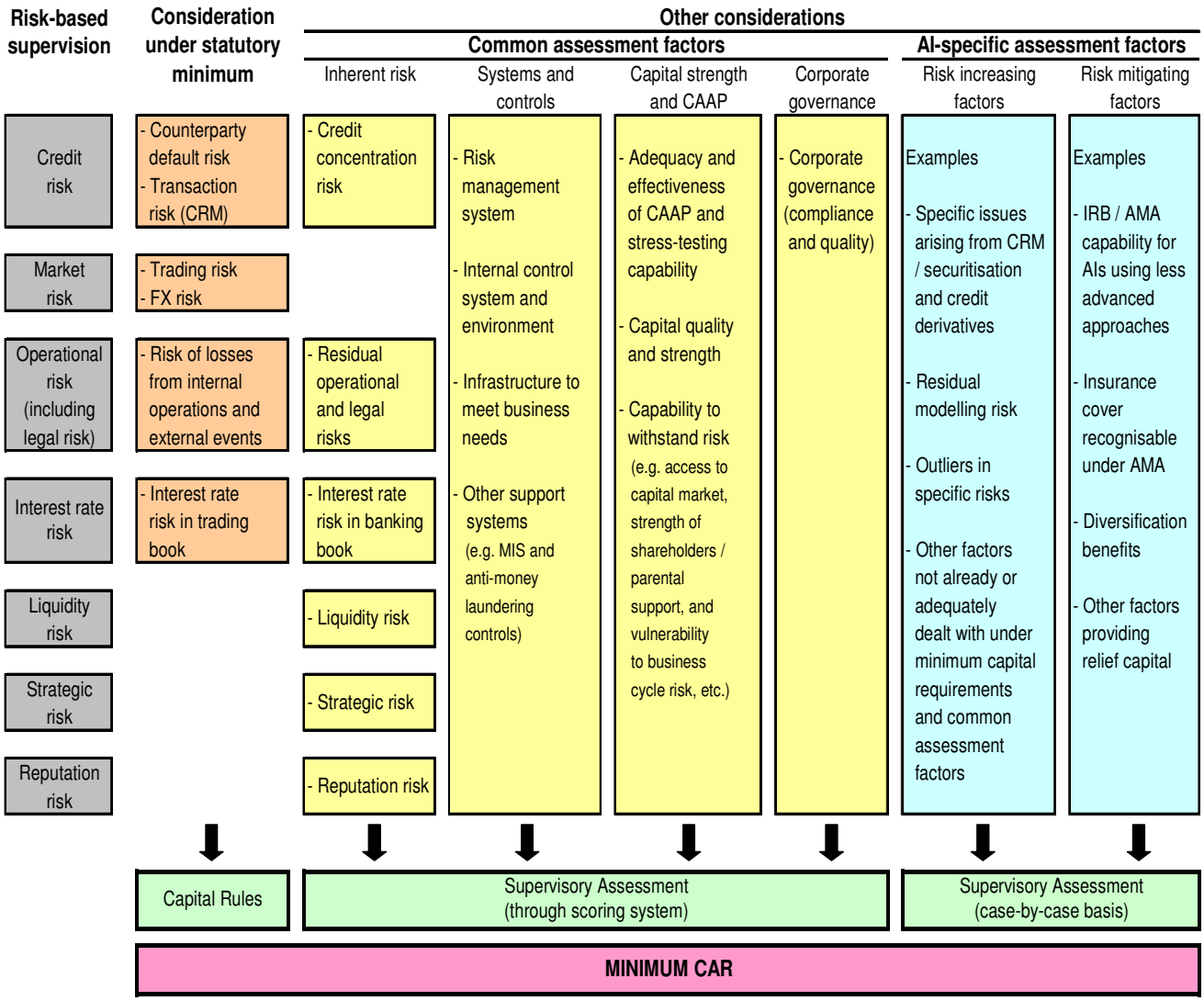
3.2 Key factors for assessing capital adequacy

3.2.1 The SRP broadens the range of risks that are ~~will be~~ captured in the revised capital adequacy framework. Apart from credit, market and operational risks that are covered under the minimum capital requirements, the SRP takes into consideration other risks faced by AIs and how well those risks are being managed by AIs. Through the SRP, the MA ~~will~~ evaluates the extent to which an AI is required to hold more capital to cover those risks (i.e. the capital add-on). This subsection serves to specify the major risk and control factors that the MA ~~will~~ considers under the SRP and the approach to assessing the impact of such factors on an AI's minimum CAR.

3.2.2 With the risk-based supervisory approach as its foundation, the SRP is developed to provide the MA with

a comprehensive, systematic and consistent framework for determining the minimum CAR of individual AIs. **Diagram 3** below outlines the key elements that constitute the assessment framework.

Diagram 3 – Key Elements of SRP Assessment Framework



3.2.3 Central to the SRP is the MA's assessment of the level of capital that an AI should set aside for the eight inherent risks identified for the purpose of risk-based supervision,

to which all the assessment factors under the SRP can be linked. These inherent risks (see column 1 of **Diagram 3**), i.e. credit, market, operational (and legal), interest rate, liquidity, strategic and reputation risks, are as defined in SA-1 "Risk-based Supervisory Approach".

3.2.4 In determining the overall risk profile and minimum CAR of an AI, the MA ~~will~~ takes into account two types of assessment factors, i.e. those that are commonly applicable to all AIs (referred to as the "common assessment factors") and those that are specific to the AI concerned (referred to as the "specific assessment factors"). Common assessment factors include those inherent risks set out in para. 3.2.5 and other assessment factors mentioned in para. 3.2.7. Specific assessment factors are explained in paras. 3.2.13~~1~~ to 3.2.174 below. See also **Annex B** for a more detailed description of the assessment factors.

Level of inherent risks

3.2.5 Out of the eight inherent risks, there are certain risks, namely, credit risk (in terms of counterparty default risk and transaction risk), market risk and operational (and legal) risk, that are within the scope of the minimum capital requirements and hence are covered by the statutory minimum of 8% (see column 2). The other inherent risks (including residual risks), as listed below, are to be assessed under the SRP (see column 3):

- credit concentration risk (as a major source of residual credit risk);
- residual operational (and legal) risk;
- interest rate risk in the banking book;
- liquidity risk;
- strategic risk; and
- reputation risk.

3.2.6 The MA ~~will~~ assesses an AI's level of inherent risks covered under the SRP, taking into consideration all relevant qualitative and quantitative factors, including their respective significance to the AI's overall risk profile and the degree of potential loss that may be posed by these risks in relation to the AI's earnings and capital. The direction of such risks (i.e. "increasing", "stable" or "decreasing")[4], including those arising from new ~~business~~ products, ~~or~~ services or business activities, in the next 12 months is~~will~~ also ~~be~~ considered. The resultant level of inherent risk is~~will be~~ categorised as "low", "moderate" or "high"[5].

Other common assessment factors

3.2.7 In addition to the level of inherent risks, the MA ~~will~~ assesses an AI's performance under the following assessment factors (see columns 4 to 6) with a view to ascertaining the AI's ability to manage and mitigate the inherent risks:

- Systems and controls – this refers to the assessment of an AI's overall operating soundness, including the adequacy of:
  - risk management systems (i.e. systems used for identifying, measuring, ~~and~~ monitoring, controlling, mitigating and reporting the eight inherent risks);
  - internal control systems and environment (including organisation structure, delegation of authority, segregation of duties, control culture, internal audit and compliance functions);

[4] If the level of credit risk is "low" but the direction of this risk is "increasing", the MA may consider whether there is sufficient basis for increasing the level of credit risk to "moderate".

[5] By way of example, the credit concentration risk of an international bank with fairly diversified portfolios by counterparty, sector, or geographical location will likely be regarded as "low" whereas that of a domestic deposit-taking company with a highly concentrated loan portfolio (e.g. with a few large or connected borrowers) will likely be regarded as "high".

- infrastructure to meet business needs (such as IT capability, staff competence, and outsourcing); and

- other support systems (such as management information systems ("MIS"), accounting systems and anti-money laundering controls);

- Capital strength and CAAP – this refers to the assessment of:

  - the quality of capital held by an AI and its access to additional capital and capability to withstand business or economic cycles and other external risk factors (e.g. the impact of mergers/acquisitions, competition or adverse events on the AI's operations); and

  - the quality and effectiveness of an AI's CAAP (including capital planning and longer-term capital maintenance) for managing its capital adequacy in relation to its risk profile, particularly the level of capital which enables the AI to stay in business, ~~as well as~~ the overall environment within which the CAAP operates, as well as its~~the~~ compliance with the CAAP standards (for AIs that are subject to the CAAP standards set out in section 4); and

- Corporate governance – this refers to the assessment of the adequacy of an AI's corporate governance arrangements (see also paras. 3.2.8 and 3.2.9).

3.2.8 In assessing the above factors, the MA ~~will~~ pays particular attention to the firm-wide risk oversight exercised by the AI's Board and senior management, including their knowledge and experience in the AI's major business activities and risk management systems, their participation and involvement in development of the AI's CAAP and risk management processes, and their responsiveness to risk management and control issues

raised by the MA. Their willingness and ability to promote and maintain prudent remuneration policies and practices within the organisation will also be a major factor for consideration.

3.2.9 With respect to new or complex products and activities engaged in by an AI, the MA expects senior management to understand the assumptions regarding business models, valuation and risk management practices underlying those products and activities and to evaluate the potential risk exposure if such assumptions fail. T~~t~~he MA ~~will~~ also takes into account senior management's ability to detect and rectify issues or problems arising from internal operations and to react promptly to changes in the external environment (e.g. due to competition or deterioration in macroeconomic variables) that could adversely affect the AI's overall condition.

3.2.10~~9~~ In relation to the assessment of capital strength, an AI's prospects and ability to obtain additional capital readily and the likelihood of it doing so when under stress, the capital support potentially available from the AI's shareholders, and the obligations and commitments to which the AI may have towards its subsidiaries and affiliates (if any) are relevant factors to be considered. In the case of an AI which is a banking subsidiary or a member of a banking group (local or foreign), the MA will further consider whether the AI has strong parental support and whether the parent bank or holding company has the resources to provide such support when needed.

3.2.11~~0~~ In addition to an AI's ability to maintain sufficient capital for all material risks, the MA attaches importance to the AI's strength in operating effectively throughout a severe and prolonged period of financial market stress or an adverse credit cycle. Particularly, the MA will have regard to whether the AI's CAAP has, through stress-testing or otherwise, addressed both short-term and long-term capital needs and considered the prudence of

building excess capital over benign periods of the credit cycle to enable it to withstand a severe and prolonged market downturn.

3.2.120 ~~The MA will, i~~In evaluating the above factors, the MA takes into account ~~have regard to~~ the business nature, scale of operations and systemic importance of AIs and their compliance with the supervisory standards and best practices contained in the relevant guidelines set out in **Annex A**. The resultant level of performance of the above factors is~~will be~~ categorised as "strong", "acceptable" or "weak".[6] A "strong" performance on the above factors will have a positive impact on the overall risk profile of an AI, and vice versa.

Specific assessment factors

3.2.131 ~~1~~ There are two types of specific assessment factors, i.e. risk increasing factors (see column 7) and risk mitigating factors (see column 8). They are used to cater for situations or circumstances specific to the AI concerned and which have not been dealt with or adequately dealt with under the minimum capital requirements or common assessment factors. The MA will consider these factors on a case-by-case basis, having regard to their significance to individual AIs. The use of such factors is however exceptional and subject to close scrutiny by the MA.

3.2.142 ~~2~~ Risk increasing factors are specific factors that will lead to a negative impact on the minimum CAR of an AI. Examples of such factors include:

- significant "outliers" identified in the review of common assessment factors. These may relate to

[6] For example, the MA may grade an AI's risk management systems as "strong" if the AI's past history indicates that its risk management policies, systems and controls address all material risks and are effectively implemented. However, if subsequent supervisory findings have identified significant flaws in the AI's risk monitoring and reporting procedures to the extent that senior management is not given accurate or adequate information to evaluate the risks faced by the AI, there may be scope for downgrading the AI's "risk management systems" to "weak".

extremely high levels of inherent risk, substantial management or control weaknesses, or significant vulnerability to adverse economic events which warrant a full assessment of the additional capital required to cover the risks involved;

- factors specific to the business and operations of individual AIs, such as ~~business~~ risk concentrations that may arise within each type of risk or through a combination of exposures across different types of risk, and other material non-banking risks (e.g. rapid expansion in non-banking activities without proper expertise and management systems); and

- specific issues arising from the application of, or compliance with, minimum standards or requirements stipulated under the revised capital adequacy framework. These issues may arise from:

  - residual credit risk associated with credit risk mitigation techniques or complex credit derivatives or securitization transactions;

  - use of internal models under the IRB approach or IMM approach (e.g. capital shortfall identified in stress tests, breach of qualifying criteria or certain modelling deficiencies pending rectification); or

  - operational risk capital charge not commensurate with the scale and complexity of an AI's business operations (e.g. due to the AI's operating losses or significant decline in earnings)[7].

3.2.15~~3~~ Risk mitigating factors are specific factors that will have a positive impact on the minimum CAR of an AI. They are used by the MA as incentives for AIs to improve their

[7] This issue will be considered in the MA's assessment of residual operational (and legal) risk under para. 3.2.5. See also subsection B2.2 of **Annex B** for more details.

risk management so that the level of their inherent risks can be effectively mitigated. As an example, if an AI can demonstrate to the MA's satisfaction its proficiency in managing credit, market or operational risk by having sophisticated risk management systems comparable to those required for adopting the advanced approaches promulgated under Basel II[8] (although the systems may not have been used for regulatory capital treatment in Hong Kong[9]), the MA may recognise this as a risk mitigating factor.

3.2.16~~4~~ In considering an AI's minimum CAR, the MA will determine, in consultation with the AI concerned, whether there is any risk mitigating factor that can be recognised for capital adequacy purposes. To facilitate his assessment, the MA may require the AI to provide any such information or documentary evidence as is deemed necessary in the circumstances of the case. The MA will assess each case based on its own merits, taking into account the information provided by the AI to justify the risk mitigating effect of the factor under consideration.

3.2.17~~5~~ The MA will determine the extent to which the minimum CAR of an AI can be increased or reduced due to the specific assessment factors based on his assessment of the extent to which such factors can increase or mitigate the risks of the AI.

Assessment approach

---

[8] These approaches refer to the IRB approach for credit risk, the IMM~~internal models~~ approach for market risk and the Advanced Measurement Approaches ("AMA") for operational risk as set out in "International Convergence of Capital Measurement and Capital Standards – A Revised Framework (Comprehensive Version)" published by the Basel Committee on Banking Supervision in June 2006.

[9] An example of such situations is where a foreign-owned subsidiary AI may adopt in Hong Kong the standardised approach for the calculation of operational risk ~~in Hong Kong~~ while using for risk management purposes the AMA systems of its parent bank, which has been recognised for capital adequacy purposes by the relevant home supervisor ~~for capital adequacy purposes, for risk management purposes~~.

3.2.1~~8~~6 In conducting his assessment under the SRP, the MA ~~will~~ uses a combination of techniques and tools, which include:

- quantitative and qualitative assessments;
- scoring of key risk factors and trends;
- statistical and sensitivity analyses;
- stress and scenario tests;
- benchmarking against industry performance; and
- peer group comparisons.

In particular, the common assessment factors are~~will be~~ evaluated based on a scoring system developed by the MA whereas the specific assessment factors are~~will be~~ separately considered by the MA on a case-by-case basis, with the other techniques and tools incorporated where appropriate. Attached at **Annex C** is a set of scoring worksheets which help describe the manner in which the MA ~~will~~ uses various techniques and tools to facilitate his assessment under the SRP. AIs should however note that the scoring worksheets are~~will be~~ subject to periodic review by the MA, and are shown here for illustrative purposes only.

3.2.1~~9~~7 Regardless of the approach taken, supervisory judgement is~~will~~ still ~~be~~ an important element in the overall assessment. The MA may also seek the views of the external auditors of an AI and, where applicable, its home or host supervisor on particular issues affecting the AI.

3.2.20~~18~~ On the basis of the assessment results, the MA will decide upon an AI's overall risk profile (also categorised as "low", "moderate" or "high") to facilitate his determination of the AI's minimum CAR and any other appropriate supervisory response to the AI's conditions (e.g. the scope and frequency of the next SRP or the

need for any supervisory action to be taken in view of the weaknesses or deficiencies identified).

3.2.~~19~~21 **Diagram 4** below is an illustration of the risk profile matrix which relates an AI's overall risk profile to the level of inherent risks of the AI (with focus on those captured under the SRP) and its performance in other common assessment factors, i.e. systems and controls, capital strength and capability to withstand risk, CAAP (if applicable), and corporate governance. The effects of any specific assessment factors applicable to the AI will also be taken into account.

Diagram 4 – Risk Profile Matrix

		SYSTEMS AND CONTROLS / CAPITAL STRENGTH / CAAP / CORPORATE GOVERNANCE etc. (aggregate result of assessment)		
		STRONG	ACCEPTABLE	WEAK
INHERENT RISK	HIGH	Moderate risk profile	Moderate / high risk profile	High risk profile
	MODERATE	Low / moderate risk profile	Moderate risk profile	Moderate / high risk profile
	LOW	Low risk profile	Low / moderate risk profile	Moderate risk profile

3.2.2~~0~~ In order to ensure the quality and consistency of the assessments made, the MA ~~will~~ aggregates the assessment results of individual AIs and compares the results among peer groups. The assessment results and recommendations will also be subject to the independent review procedures set out in subsection 2.7 before they are finalised.

3.2.3~~1~~ The MA will discuss the assessment results in detail with individual AIs and consult with them if an increase in

their minimum CAR is proposed (see **Diagram 2** under subsection 2.7).

3.3 Determination of minimum CAR

3.3.1 Under the SRP, the minimum CAR set by the MA is made up of the statutory minimum of 8% plus a capital add-on which is deemed necessary by the MA to cater for other risks and uncertainties faced by an AI. The MA has the power under §101(1) of the Banking Ordinance to raise the minimum CAR of an AI, after consultation with the AI, to up to 16%, meaning that the capital add-on is subject to a maximum of 8%.

~~3.3.2 With the implementation of the SRP, it is in principle possible for an AI to be assigned a minimum CAR of 8% (i.e. with no capital add-on required) if the MA is satisfied that the AI is well diversified with strong business, management, systems and controls, and all of its material risks are adequately covered by the statutory minimum. Other AIs that do not fall within this category will be required to hold a capital add-on in excess of the statutory minimum, the size of which is governed by the results of their SRP.~~

3.3.2~~3~~ The minimum CAR of an AI ~~will~~ reflects the MA's perception of its overall risk profile, taking into account all the relevant assessment factors set out in subsection 3.2. The factors may have different levels of significance to different AIs, depending on their individual circumstances. For example, some AIs may be more affected by external factors while for others, management quality or internal controls may be the principal issues.

3.3.3~~4~~ Broadly speaking, AIs are~~will be~~ assigned with a minimum CAR that falls within the following categories, depending on their assessment results under the SRP:

Overall risk profile	Minimum CAR
Low	8% - 9%
Moderate	>9% - 12%
High	>12% - 16%

3.3.4~~5~~ The minimum CAR is~~will be~~ set at a multiple of 0.5% in the light of the more risk-sensitive approach adopted under the SRP. To reduce frequent fluctuations in the minimum CAR, the MA will consider whether the factors leading to a change in the minimum CAR are temporary in nature or require further observation. For example, if there are reasonable expectations that certain system deficiencies will be quickly rectified by an AI, the MA may consider withholding temporarily the proposed increase in minimum CAR pending a review of the AI's corrective actions. Conversely, if a reduction in an AI's minimum CAR is proposed in the light of the AI's actions taken to address supervisory concerns raised by the MA, the MA may consider withholding temporarily the proposed reduction until a more comprehensive assessment of whether the improvements have been effectively implemented is completed.

3.3.5~~6~~ While the setting of an appropriate minimum CAR for individual AIs is an important aspect of the SRP, the MA recognises that capital alone is not a substitute for sound risk management and control environment. In fact, certain risks (e.g. reputation or liquidity risk) may not be adequately addressed by holding additional capital alone. A more appropriate response would be to mitigate a risk by way of adequate systems and controls, or by a combination of adequate systems and controls and additional capital and resources (e.g. a larger liquidity buffer in the case of liquidity concerns).

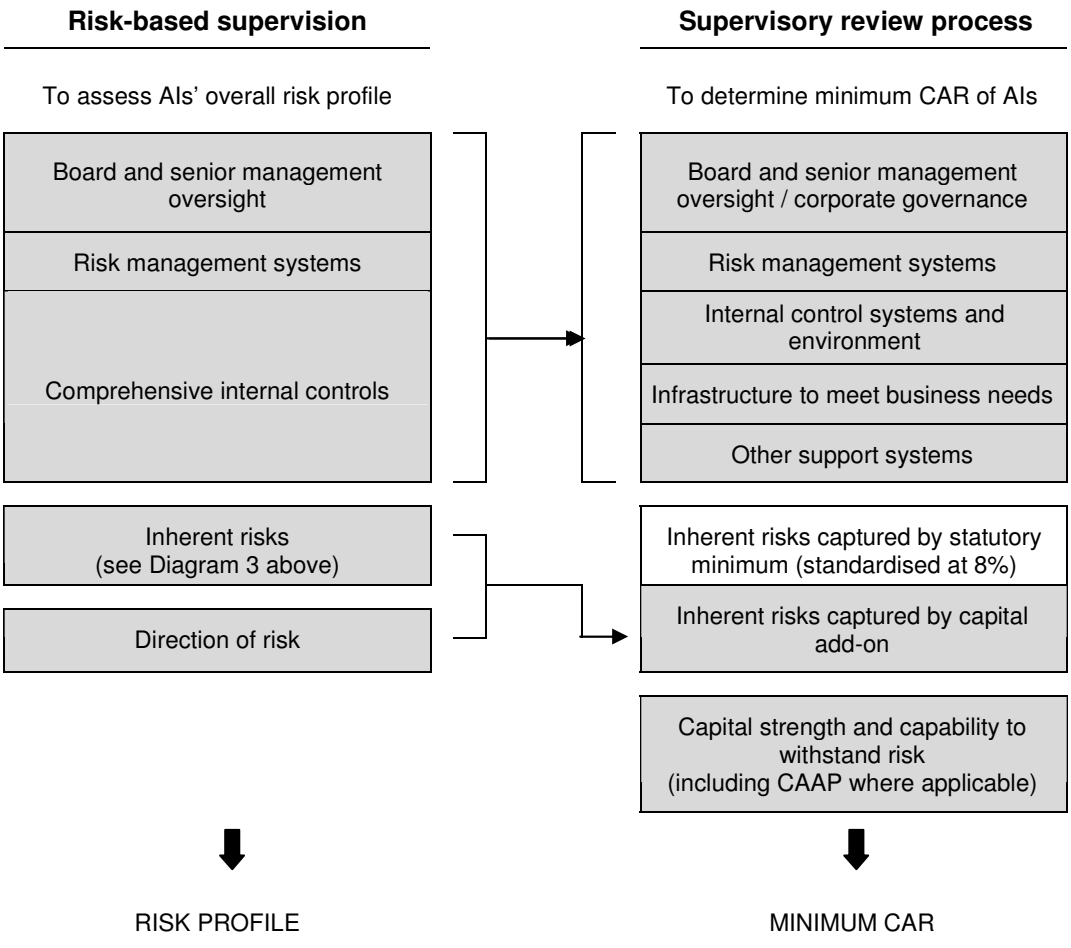
3.3.6~~7~~ In certain circumstances (e.g. during the period in which system and control weaknesses have been identified but have yet to be fully remedied), the MA may make use of an increase in regulatory capital as a supervisory tool to focus the minds of management of an AI on the need for

improving risk management and rectifying control deficiencies. Thus, the MA may increase the AI's minimum CAR temporarily and, where necessary, take other appropriate supervisory actions (e.g. requiring the AI to reduce the risk inherent in its activities, products and systems), pending corrective actions by the AI.

3.4 Integration with risk-based supervisory process

3.4.1 **Diagram 5** below illustrates the relationship between the SRP and the risk-based supervisory process.

Diagram 5 – Relationship between SRP and Risk-based Supervision



3.4.2 The MA has identified eight inherent risks (i.e. credit, market, interest rate, liquidity, operational, legal, reputation and strategic) for the purpose of risk-based supervision, which is a dynamic and forward-looking approach used for assessing an AI's risk profile (ascertained by balancing the level of the eight inherent risks with the quality of risk management systems for each of these risks). See SA-1 "Risk-based Supervisory Approach" for more details.

3.4.3 With the implementation of the SRP, the risk-based supervisory framework for evaluating an AI's overall risk profile is~~will be~~ further enhanced by a comprehensive assessment under the SRP of all relevant factors before the resultant risk profile of the AI is derived. This enhanced framework ~~will~~ also forms the basis for determining the AI's minimum CAR.

3.4.4 The MA's assessment of an AI's capital strength and capability to withstand risk (including a review of the AI's CAAP where applicable) is conducted as part of the SRP. The results of this assessment ~~will~~ supplement the risk-based supervisory process by providing analyses on the AI's capital strength and earning capacity.

3.4.5 The MA will continue to streamline the risk-based supervisory process to encompass evaluation of the SRP and integrate the assessment results for determination of an AI's risk profile and minimum CAR.

3.5 Use of stress ~~and scenario~~ tests

Role of stress-testing under SRP

3.5.1 An important aspect of the SRP is to assess the potential vulnerability of an AI to adverse events or other external factors affecting the AI (e.g. business cycle risk) and the need for the AI to hold additional capital for such risk. In performing this assessment under the SRP, the MA will have regard to the results of stress tests ~~and scenario analyses~~ conducted by an AI, which may provide useful

information about the effects of "stressed" situations on the AI's financial condition, particularly the impact on its asset quality, profitability and capital adequacy.

3.5.2 Stress tests include sensitivity tests and scenario analyses. A sensitivity ~~stress~~ test typically involves shifting the values of individual risk factors (e.g. worsening of credit spreads or adverse changes in interest rates or other macroeconomic variables) ~~that affect an AI's financial position~~ and determining the effect of such changes on an AI's ~~its~~ business and financial position. ~~Stress-testing results can be used by an AI to determine the appropriate appetite for different types of risks and estimate the amount of capital that should be set aside to cover them.~~

3.5.3 A scenario analysis measures the combined effect of adverse movements in a wider range of risk factors affecting an AI's business operations at the same time (e.g. an economic recession coupled with a tightening of market liquidity and declining asset prices). Stress scenarios may be derived from stochastic models or historical events, and can be developed with varying degrees of precision, depth and severity.

3.5.4 S~~Both s~~tress tests ~~and scenario analyses~~, which supplement other risk management approaches and measures, help ~~will~~ improve an AI's understanding of the vulnerabilities that it faces under exceptional, but plausible, events, and provide the AI with an indication of how much capital might be needed to absorb losses if such events occur. These events can be financial, operational, legal or relate to any other risk that may have an economic impact on the AI concerned.

3.5.5 The results derived from stress tests can also facilitate an AI in determining the appropriate appetite for different types of risk and in estimating the amount of capital that should be set aside to cover them.

Stress-testing obligations on AIs

3.5.6~~5~~ Under the SRP, AIs are expected to carry out regularly rigorous and forward-looking~~regular~~ stress tests~~ and scenario analyses~~ that are appropriate to the nature of their business and the major sources of risk faced by them for risk management purposes. The MA ~~will~~ assesses the effectiveness of an AI's stress-testing programme in accordance with the general standards set out in IC-5 "Stress-testing", and considers whether the use of stress-testing forms an integral part of the AI's overall governance and risk management culture. The MA may challenge the key assumptions driving the stress-testing results and their continuing relevance in view of existing and potential changing market conditions. This will be done as part of his review of the AI's risk management systems.

3.5.7~~6~~ AIs should integrate relevant stress-testing results into their CAAP so as to ensure that there is sufficient capital to withstand the impact of possible adverse events or changes in market conditions on them. In his review of an AI's CAAP, the MA ~~will~~ takes into account the stress-testing approach adopted by the AI (including the methodologies and assumptions used), examines the AI's future capital resources and capital requirements under adverse scenarios, and considers the extent to which the AI has provided for unexpected events in setting its capital level. See **Annex D** regarding the supervisory requirements on the application of stress ~~and scenario~~ tests for the assessment of capital adequacy.

3.5.8~~7~~ In addition, AIs using the IRB approach to calculate credit risk or the IMM approach to calculate market risk are required to conduct respectively credit risk or market risk stress tests in compliance with the respective minimum capital requirements. The MA ~~will~~ reviews the stress-testing results to ascertain whether AIs have sufficient capital to meet the minimum capital requirements and cover such results.

3.5.9~~8~~ If the MA is not satisfied with an AI's capital adequacy after taking into account its stress-testing results, the MA

may consider increasing the AI's minimum CAR and/or require the AI to reduce its risks. Where necessary, other appropriate supervisory measures may also be taken.

Supervisory stress tests

3.5.10~~9~~ In reviewing AIs' capability to withstand risk, the MA ~~will~~ conducts sector-wide stress tests regularly to assess and compare individual AIs' vulnerability to the same set of severe market shocks or crisis situations (e.g. based on hypothetical scenarios that are similar to or more severe than those experienced during the 1997/1998 Asian Crisis), making use of the statistical data provided by AIs or results generated from their stress tests.

3.5.11~~0~~ Other stress tests will also be applied where appropriate. For example, the MA ~~will~~ applies~~y~~ liquidity stress tests to retail banks based on the quarterly cash flow data submitted by them to assess their vulnerability to liquidity crises or bank-run situations when determining the level of their liquidity risk.

3.5.12~~1~~ The MA will consider whether those "outlier" AIs that show significant vulnerability to "stressed" situations compared with their peers warrant a higher minimum CAR and/or a reduction in risk exposures.

3.6 Supervisory guidance on risk management practices

3.6.1 A key feature of the SRP lies in its emphasis on the comprehensive recognition of risk in an AI's capital planning and management processes. Apart from requiring AIs to maintain adequate capital to support the risks they undertake, the SRP encourages them to develop and use better risk management techniques for monitoring and controlling such risks, especially those specific risks not directly or fully addressed under the minimum capital requirements.

3.6.2 The MA will continue to develop or enhance supervisory guidelines on risk management and control standards applicable to the SRP (see **Annex A** for a list of relevant supervisory guidelines) with a view to:

- encouraging AIs to adopt international standards and best practices in managing their risks;
- enabling them to be better prepared for meeting the relevant standards under the SRP; and
- ensuring a consistent application of the standards.

3.6.3 This will make the SRP more risk-sensitive in terms of matching regulatory capital requirements to the risks taken by AIs, and help mould regulatory capital requirements to the way in which AIs manage their business.

3.7 Ongoing monitoring of capital adequacy

3.7.1 The MA ~~will~~ performs ongoing evaluation and monitoring of AIs' capital adequacy, including their compliance with the qualifying criteria of the relevant approaches adopted by them under the revised capital adequacy framework. For example, these may relate to the use of the IRB approach and the IMM approach or the recognition of credit risk mitigation techniques and securitization transactions for capital adequacy purposes.

3.7.2 If an AI is found to have a continuing decline in its capital level, the MA will require the AI to provide a capital restoration plan and the timetable for doing so. The MA will establish an action plan to monitor the AI closely. If the AI's capital is not maintained or restored within the specified timeframe, the MA may take other appropriate supervisory actions, such as restricting the AI from business expansion or limiting its business, operations or network, pending restoration of the capital to an adequate position.

3.7.3 If the findings gathered from ongoing offsite reviews or onsite examinations reflect concerns about an AI's compliance with certain qualifying criteria or conditions under the minimum capital requirements, the MA may seek further explanations from the AI or conduct a more detailed examination to assess the concerns. If necessary, the MA may commission a special review under §59(2) of the Banking Ordinance.

3.7.4 As AIs have an obligation to manage their capital and ensure that it is sufficient to cover the risks undertaken by them, they are expected to maintain internal monitoring systems (e.g. through internal validations or audits) to ensure that their capital does not fall below prudent levels, and that they continue to meet the minimum standards required for the use of particular approaches or methodologies under the minimum capital requirements.

3.7.5 The MA would expect AIs to advise him of any significant decline in capital levels or non-compliance with certain standards or criteria under the minimum capital requirements (and the causes of such decline or non-compliance) and the remedial actions to be taken as soon as practicable. In the event that an AI's capital falls below the minimum CAR or trigger ratio, the AI should set out a plan for restoring its capital position. Depending upon the circumstances and frequency with which these situations occur, the MA may regard them as indicative of system and control weaknesses.

4. Supervisory standards on CAAP

4.1 General

4.1.1 Under the SRP, AIs are expected to have a CAAP for assessing their overall capital adequacy in relation to their risk profile and a strategy for maintaining their capital levels, unless otherwise exempted by the MA (see para. 4.1.2). The CAAP should fit their individual circumstances and needs, having regard to the risk

profile and level of sophistication of their operations. The MA has the responsibility of evaluating AIs' CAAP and their capital adequacy through the SRP, the results of which will be taken into account in determining their minimum CAR.

4.1.2 This section sets out the MA's approach to reviewing AIs' CAAP and the supervisory standards expected of such CAAP. The requirements for conducting CAAP are applicable to all AIs except for the following:

- AIs that have been approved by the MA for adopting the basic approach permanently are not subject to the CAAP standards in the light of their small and simple operations. Nevertheless, they remain responsible for ensuring that there is sufficient capital to meet their business and operational needs; and

- AIs that are subsidiaries of a local banking group are not required to establish their own CAAP if their capital is managed on a group basis and incorporated into the group CAAP.

4.1.3 The MA recognises that there is no single correct approach to conducting the CAAP. As such, the focus of the MA is on providing high level guidance rather than prescriptive criteria on CAAP methodologies or techniques that should be employed. This also takes into account the fact that market consensus on what constitutes best practice for conducting the CAAP has yet to be emerged, and the development of relevant methodologies and techniques (e.g. on how non-quantifiable risks such as reputation and strategic risks are to be measured) is still evolving. The onus, therefore, is on AIs to explain and demonstrate how their CAAP meets supervisory standards, and why they consider their capital targets appropriate given the scale and complexity of their business.

4.1.4 While the MA will assess the reasonableness of AIs' CAAP outcome in his review, there is no attempt on the

part of the MA to reconcile the difference between the minimum CAR set by the MA and the outcome of an AI's CAAP, as regulatory and economic capital [10] are essentially two different concepts and the objectives that they serve may not be entirely the same. Nevertheless, reviewing an AI's CAAP outcome will help the MA to better understand the AI's capital management systems and strategies.

4.1.5 AIs may have different capital adequacy goals (e.g. some may target for a certain credit rating). At a minimum, the MA would expect an AI to establish a CAAP to assess the capital needed to cover all material risks, achieve its business plan and enable it to stay in business (with sufficient core capital to protect itself from insolvency).

4.1.6 Although there is no~~will not be a~~ stringent deadline for AIs to comply fully with the CAAP standards set out in this section, the MA may, where appropriate, take into account the effectiveness of an AI's CAAP in the setting of minimum CAR for that AI. The CAAP will also enable an AI to measure its risks and allocate capital against such risks more precisely. It is therefore in the interest of AIs to enhance their CAAP capabilities as soon as practicable.

4.2 Board and senior management oversight

General responsibilities for CAAP

4.2.1 The Board and senior management of an AI have the primary responsibility for ensuring that the AI has

[10] There is as yet no standardised definition for economic capital within the banking community. However, generally speaking, economic capital is more concerned with shareholders' funds than with other sources of subordinated funding (i.e. the amount of losses that can be absorbed before shareholders' funds are exhausted) and hence is more akin to the nature of core capital. Nevertheless, the approach to evaluating economic capital may differ among AIs depending on the capital objective or the desired level of confidence interval set. Regulatory capital goes beyond the amount needed for survival and includes supplementary capital (which serves as an additional protective cushion for depositors).

adequate capital to support its risks. At a minimum, the capital required should enable the AI to operate as a going concern and be sufficient to provide for business growth.

4.2.2 The Board and senior management should ensure that the AI has in place a strategic plan which clearly outlines its current and future capital needs, anticipated capital expenditures, desirable capital level, and external capital sources. This analysis of the AI's capital requirements in relation to its strategic objectives is a vital element of the strategic planning process. In addition, they should ensure that the AI has in place an effective capital planning process (see paras. 4.3.11 to 4.3.13 for more details) in order to achieve the desired strategic objectives, and that all staff are fully aware of the AI's corporate goals and objectives.

4.2.3 A sound firm-wide risk management framework is the foundation for an effective assessment of the adequacy of an AI's capital position. The Board and senior management should ensure that such a framework is in place, which enables the AI to set its appetite and tolerance for risks, and supports their ability to manage the AI's risks from an integrated, firm-wide perspective and to identify and react to emerging and growing risks in a timely and effective manner.

4.2.4 To achieve the above, the Board and senior management should:

- have a thorough understanding of the AI's risks on a firm-wide basis, especially the risks associated with new or complex products and activities (e.g. those arising from the "originate-to-distribute" business model and securitization activities), and how such risks interact with other risks and relate to adequate capital levels under both normal and stressed conditions;

- ensure that the AI's risk management framework includes detailed policies that set specific firm-wide

prudential limits on the AI's activities, which are consistent with its risk-taking appetite and capacity;

- ensure that the infrastructure, systems and controls necessary to manage the AI's risks are in place, and are effective and commensurate with its overall risk profile;

- ensure that accountability and lines of authority are clearly delineated and effectively communicated throughout the organisation;

- provide specific guidance for the implementation of the AI's business strategies, and monitor compliance with internal policies and limits established for managing the AI's various types of risk;

- establish adequate operating and control procedures to ensure that the AI is operating in compliance with regulatory capital and disclosure standards and requirements and to monitor the performance of staff in administering and controlling the capital position of the AI; and

- remain adequately informed on an ongoing basis about the AI's risks as financial markets, risk management practices and the AI's activities evolve.

Definition of capital used

4.2.5 It is important for the Board and senior management to ensure that the definition of the AI's capital used in its CAAP is stated clearly and consistently applied. This is in the light of various definitions of capital that may be used within the banking industry. For example, some AIs may for internal purposes choose a narrow definition for capital, such as confining it to ordinary shares, while others may define capital more broadly. The Board and senior management should understand such differences and their implications. As the components of capital are not necessarily alike and have varying ability to absorb

losses, the Board and senior management should thoroughly comprehend the relationship between the AI's capital definition and its assessment of capital adequacy. Any changes in the AI's internal definition of capital and the reason for those changes should be properly documented.

Capital planning and management policies

4.2.6 ~~To meet this responsibility,~~ It is likewise important that the Board and senior management should, among other things, ~~should~~ ensure that the internal policies set out below are in place for capital planning and management purposes, and meet the standards and criteria required in the relevant supervisory guidelines (see **Annex A** for more details):

- ~~establish~~ a capital policy which, at a minimum, includes :
  - the AI's short-term and long-term capital adequacy goals in relation to its risk profile, taking into account its strategic focus and business plan;
  - the approved capital targets that are consistent with the AI's overall risk profile and financial position;
  - the approach for determining the AI's overall capital adequacy in relation to its risk profile; and
  - measures that would be taken in the event capital falls below a targeted level;
- ~~maintain~~ other management policies~~,~~ to supplement the capital policy~~,~~ in relation to:
  - firm-wide risk management, which takes into account all material risks (both quantifiable and

non-quantifiable)[11] as well as risks that do not appear to be significant in isolation, but when combined with other risks could lead to material losses or consequences[12];

- stress-testing, which should adequately address business cycle risk and measure the AI's ability to withstand adverse conditions (see subsection 3.5 for more details);

- valuation practices, which should apply to all positions (including complex, structured products and financial instruments) that are measured at fair value and at all times, especially during times of stress;

- remuneration systems, which should consider risk-adjusted performance measures and focus on achieving longer-term capital preservation and financial strength rather than being focusing on and thereby potentially encouraging the generation of short-term accounting profits;

- dividend payout, which should neither hinder the AI from capital formation to support business growth nor weaken its capital position or financial soundness;

- provisioning and methodology, which should ensure that the level of provisions established and maintained by the AI is adequate to absorb estimated losses inherent in the AI's asset portfolios, binding commitments and contingent liabilities; and

[11] Risks posed by concentrations, securitization and off-balance sheet exposures that are relevant to the AI should also be considered.

[12] For example, the direct loss of an AI arising from an operational risk event (e.g. loss of confidential customer data) may be limited in itself. However, if this event affects a large number of customers and has attracted a lot of adverse market publicity, there may be substantial damage to the AI's reputation, apart from the potential claims for damages filed by the customers and other regulatory consequences for the AI for breaching data privacy rules and client confidentiality obligations.

- income recognition and methodology, which should, among other things, clearly define under what situations the AI can or cannot recognise income and set out the details of the methodologies adopted.;

~~•establish capital management guidelines and operating procedures to ensure that the AI is operating in compliance with regulatory capital standards and requirements as well as all internal policies in relation to capital adequacy; and~~

~~•establish adequate control procedures to monitor the performance of staff in administering and controlling the capital position of the AI.~~

4.2.~~3~~7 The Board and senior management should also update the AI's capital planning and management policies from time to time, and establish additional policies where necessary, to ensure that all such internal policies are always in compliance with the applicable supervisory and regulatory requirements.

4.2.8 Failure to adhere to the above requirements may call into question whether the Board and senior management have adequately discharged their responsibility under para. 4.2.1.

4.3 Key elements of CAAP

General

4.3.1 AIs are expected to develop a CAAP that has the following characteristics:

- comprehensive in terms of the identification and measurement of the risks in an AI's business and the assessment of how much capital is needed to support these risks;
- risk-based and forward-looking, with emphasis on the importance of capital planning, management and

other qualitative aspects of risk management and controls, and taking into account the AI's strategic plans and how these relate to macroeconomic factors;

- integrated into the management process and decision-making culture of the AI. For more sophisticated AIs, the CAAP should be integrated into their day-to-day management process. For example, in addition to allocation of capital to business units, the CAAP would likely play a part in making credit decisions or other general business decisions (e.g. expansion plans and budgets). The results of the CAAP may also feed into the process of determining business strategies and risk appetites. Although smaller AIs tend to have less sophisticated capital planning and assessment systems, their CAAP should at least produce results that enable the ongoing assessment and management of their risk profile (e.g. the results may influence their lending behaviour or use of risk mitigants); and

- capable of producing a reasonable outcome on the overall level of capital and the assessment supporting such outcome.

4.3.2 The CAAP should capture all material risks of an AI, including the eight inherent risks covered under the MA's risk-based supervisory framework, and the interactions of these risks under both normal and stressed conditions. The overall environment within which the CAAP should operate is also important. AIs should, in particular, be able to identify other external risk factors that may arise from the regulatory, economic or business environment. In addition, adequate corporate governance and proper risk management and~~/~~ internal control arrangements constitute the foundation of an effective CAAP.

4.3.3 The basic elements of a sound CAAP should include:

- policies and procedures to identify, measure, monitor, control, and report the risks inherent in an AI's activities;

- a process to relate the AI's internal capital to its risks;

- a process to state the AI's capital adequacy goals in relation to risks, taking into account its strategic focus and business plan; and

- a process of internal controls, independent reviews and audits to ensure the integrity of the overall management process.

Risk management policies and procedures

4.3.4 The policies and procedures to identify, measure, monitor, control, and report the risks inherent in an AI's activities should meet the following standards:

- risk measurement systems should be sufficiently comprehensive and rigorous to capture the nature and magnitude of the risks faced by the AI, while differentiating risk exposures consistently among risk categories and levels of riskiness. Such systems should also be capable of performing risk aggregation[13] across different risk types or business lines;

- adequate controls should be in place to ensure the objectivity and consistency of risk identification and measurement and that all material risks (both on- and off-balance sheet) are adequately addressed;

[13] Risk aggregation is the summation of different risk types into a single risk measure. An effective CAAP should use this aggregate risk measure to estimate the amount of capital required. AIs are therefore expected to perform risk aggregation when conducting the CAAP, regardless of whether they use risk-modelling techniques to assess capital adequacy or not. If an AI uses risk-modelling techniques to assess capital adequacy, the AI should comply with the additional requirements set out in subsection 4.4.

- detailed analyses should be conducted to support the accuracy or appropriateness of the risk measurement techniques used;

- inputs used in risk measurement should be of good quality;

- those risks that are not easily quantifiable should be evaluated using qualitative assessment and management judgement. Nevertheless, AIs should recognise the biases and assumptions embedded in, and the limitations of, the qualitative approaches used;

- the economic substance of risk exposures, including reputation risk and valuation uncertainty, should be fully recognised and incorporated into the risk management process;

- changes in the AI's risk profile should be promptly incorporated into risk measures, whether the changes are due to new products or new businesses, increased volumes, changes in concentrations, the quality of the portfolio or the overall economic environment;

- when measuring risks, comprehensive and rigorous stress tests should be performed to identify possible events or market changes that could have serious adverse effects or significant impact on the AI's capital and operations (see **Annex D** for more details); and

- adequate consideration should be given to contingent exposures arising from loan commitments, securitization and other transactions or activities that may create such exposures (see **Annex E** for more details).

4.3.5 To facilitate firm-wide risk management and oversight, AIs should have in place appropriate infrastructure and

MIS that contain, at a minimum, the following key elements:

For aggregation of risks

- allow for the aggregation of exposures and risk measures across business lines and platforms (including the banking and trading books) in managing risks and monitoring limits;
- support customised identification of concentrations and emerging risks;
- support the ability to evaluate the impact of various types of economic and financial shocks that affect the whole organisation;
- should be flexible enough to incorporate hedging and other risk mitigating actions to be carried out on a firm-wide basis while taking into account the various related basis risks;

To enable proactive risk management

- should be capable of providing regular, accurate and timely information on the AI's aggregate risk profile as well as the main assumptions used for risk aggregation;
- should be adaptable and responsive to changes in the AI's underlying risk assumptions;
- should incorporate multiple perspectives of risk exposure to account for uncertainties in risk measurement; and
- should be sufficiently flexible so that the AI can generate forward-looking firm-wide scenario analyses that capture management's interpretation of evolving market conditions and stressed conditions.

4.3.6 If AIs use third-party inputs or other tools (e.g. credit ratings, risk measures and models, etc.) to produce risk management information, they should have adequate procedures in place to ensure that such inputs and tools are subject to initial and ongoing validation.

4.3.7 If AIs employ risk mitigation techniques, they should understand the risk to be mitigated and the potential effects of that mitigation (including its enforceability and effectiveness), and have in place appropriate policies and procedures to control risks associated with these techniques (see subsection B5.2 under **Annex B** for more details).

4.3.8 AIs should understand that it is often difficult to quantify measurement errors that may exist in risk measurement. As a result, the level of capital maintained should cater for an increase in uncertainty related to modelling and business complexity. AIs should suitably account for measurement errors when calculating capital requirements, and be able to demonstrate the adequacy of capital to address such errors.

4.3.9 AIs conducting risk aggregation among various risk types or business lines should understand the challenges in such aggregation. They should seek to address any potential concentrations across more than one risk dimension, recognising that losses could arise in several risk dimensions at the same time, stemming from the same event or a common set of factors. For example, a localised natural disaster could generate losses from credit, market and operational risks at the same time. See **Annex F** for more details.

Internal capital allocation process

4.3.~~5~~10 The process of relating an AI's internal capital to its risks should meet the following requirements:

- the amount of capital held should reflect not only the measured amount of risk but also an additional amount to account for potential uncertainties in risk

measurement (e.g. measurement error or modelling risk) (see also para. 4.3.8);

- the AI's capital should reflect the perceived level of precision in the risk measures used, the potential volatility of exposures and the relative importance of the activities producing the risk;

- capital levels should reflect the fact that historical correlation among exposures can change rapidly; and

- the AI should be able to demonstrate that its approach to relating capital to risk is conceptually sound and that outputs and results are reasonable.

Setting of capital adequacy goals

4.3.~~6~~11 There should be a process to state the AI's capital adequacy goals in relation to risks, taking into account its strategic focus and business plan:

- explicit goals and targets need to be established for evaluating the AI's capital adequacy with respect to its risks;

- the AI should develop an internal strategy for maintaining capital levels which should not only reflect the desired level of risk coverage but also incorporate factors such as loan growth expectations, future sources and uses of funds, and dividend policy. Other considerations may also be taken into account (e.g. external rating goals, market image, strategic goals, etc.) that are essential for the AI to~~when~~ decide~~ing~~ how much capital it should~~to~~ hold. If these other considerations are included in the CAAP, the AI will be required to show how the considerations have influenced its decisions concerning the amount of capital to be he~~o~~ld;

- the AI should have an explicit, approved capital plan that should state its objectives and time horizon for

achieving them, and set out in broad terms the capital planning process and the responsibilities for that process. The capital plan should recognise that accommodating additional capital needs requires significant lead time, and take into account the potential difficulties of raising additional capital during downturns or other times of stress. It should also set out how the AI will comply with capital requirements, any relevant limits related to capital, and a general contingency plan for dealing with divergences and unexpected events (e.g. raising additional capital, restricting business activities or using risk mitigation techniques for risk management purposes, etc.);

- the AI should conduct stress tests that take into account the risks of the environment in which it is operating and the particular stage of the business cycle, to assess the impact of possible adverse events or scenarios on its capital. The AI should analyse what impact new legislation or ~~,~~ competitors' actions ~~etc.~~ may have on its performance, in order to ascertain what changes in the environment it could sustain. The requirements and scenarios for stress-testing should be proportionate to the nature, size, risk profile and complexity of the AI's business activities;

- the AI should evaluate whether its long-run capital targets might differ from its short-run goals, based on current and planned changes in its risk profile and the lead time for raising new capital ~~recognition that accommodating new capital needs can require significant lead time~~;

- it is not necessary for the AI to use formal economic capital models for setting capital goals and ~~/~~ targets and assessing its capital adequacy, although it is expected that more sophisticated AIs will elect to do so (in which case the additional criteria set out in subsection 4.4 have to be satisfied);

- the capital goals and targets should be reviewed and approved by the Board regularly (at least annually) to ensure their appropriateness; and

- appropriate adjustments to the CAAP should be promptly~~timely~~ initiated if changes in the business, strategy or operational environment suggest that the CAAP is no longer adequate.

4.3.12 AIs should recognise that regulatory capital requirements represent a floor below which an AI's overall capital level must not fall, even if the AI's management believes that a lower capital level is justified.

4.3.13 AIs should ensure that adequate capital is held against all material risks not just at a point in time, but over time, to account for changes in their strategic direction, evolving economic conditions and volatility in the financial environment.

Internal controls and audits

~~4.3.7 There should be a process of internal controls, review and audit to ensure the integrity of the overall CAAP:~~

~~—~~4.3.14 There~~the AI~~ should be~~have~~ a process of internal controls, independent reviews and audits to ensure the adequacy, effectiveness and reliability of the overall CAAP, and to monitor the actual performance against the approval capital goals and targets as well as the conformity with~~to~~ the strategy and objectives stated in the CAAP. The frequency of the independent reviews and audits may vary depending on the size and complexity of individual AIs but should not be less than once every year.~~;~~

~~—~~4.3.15 T~~t~~he CAAP and risk management process should~~must~~ be subject to periodic reviews to ensure their integrity, accuracy and reasonableness. Areas that should be reviewed include~~-~~:

- the appropriateness of risk tolerance levels and capital planning, the effectiveness of the CAAP, and the strength of internal control infrastructure given the nature, scope and complexity of the AI's business;

- where applicable, the appropriateness and validity of third-party inputs or other tools used for management information purposes (e.g. credit ratings, risk measures and models);

- the identification of large exposures and risk concentrations;

- the accuracy and completeness of data input into the AI's assessment process;

- the reasonableness and validity of scenarios used in the assessment process; and

- the use of stress-testing, including and analysis of the underlying assumptions and inputs.~~;~~

~~4~~4.2.16 A~~a~~ll deficiencies and weaknesses identified in the CAAP, as well as~~nd~~ any non-compliance with approved internal policies and management guidelines on capital adequacy or minimum capital requirements, must be promptly~~timely~~ reported to the Board and senior management for early rectification.

4.3.17 Special attention should be paid to reviewing those areas of the CAAP that may be affected by changes in the operational or business environment, such as the introduction of new products and activities.

Design of CAAP

4.3.18 AIs may design their CAAP in different ways to cater for their individual needs and circumstances. The following are some options that AIs may have reference to:

- using the statutory minimum as a starting point and adding considerations which are not captured or

adequately captured by the statutory minimum. To many small and less complex AIs, a relatively simple CAAP is entirely acceptable for them. One possibility might be to base their CAAP primarily on the methodology set out in the minimum capital requirements, supplemented as necessary for any other generic factors which have a particular bearing on their risk profile (e.g. in terms of size, sector or products). For example, to obtain a capital goal, an AI may simply take the statutory minimum and adjust it with a capital add-on which is calibrated from elements outside the consideration of the statutory minimum and from other forward-looking elements (including the effect of stressed conditions). The AI should be able to demonstrate that it has adequately analysed all material risks outside the statutory minimum and found that all such risks were covered by the capital add-on;

- using different methodologies for the different risk types (including all risks captured by the statutory minimum and the capital add-on) and then calculating a simple sum of the resulting capital "needs";

- using a more sophisticated and complex system, e.g. "bottom-up" transaction-based approaches with integrated correlations; or

- using a combination of the above.

4.3.19 AIs should ensure that decisions regarding the design and operation of the CAAP should not be unduly influenced by competing business objectives.

4.3.20 AIs should enhance and refine their CAAP over time, taking into account changes in individual AIs' risk profile and activities as well as advances in risk measurement and management practices.

Documentation of CAAP

4.3.21 AIs should have complete documentation covering the CAAP. Such documentation should at least include:

- a description of the overall process;
- all related policies and management guidelines;
- all committees and individuals involved in the CAAP, including their responsibilities;
- the methodologies, assumptions and procedures used in the CAAP, covering all aspects ordinarily expected for the sound use of quantitative methods, including model selection, limitations, data selection and maintenance, controls and validation;
- the frequency of CAAP-related reporting; and
- the procedures for the periodic evaluation of the appropriateness and adequacy of the CAAP.

4.3.~~9~~22 The documentation of the CAAP should be subject to periodic review and approval by the Board ~~(including the methodologies, assumptions, procedures etc.) and all related policies and management guidelines as well as the responsibilities of the Board, senior management and all related staff must be formally documented, and periodically reviewed and approved by the Board~~ (at least annually).

4.3.2310 The CAAP and related policies, management guidelines and procedures should~~must~~ be communicated and implemented firm~~institution~~-wide and supported by sufficient authority and resources.

4.4 Additional criteria for use of risk-modelling techniques

4.4.1 Larger and more sophisticated AIs may prefer using risk-modelling techniques (e.g. economic capital or other models) to perform risk aggregation and to assess capital adequacy within a certain degree of confidence. ~~Risk aggregation is the summation of many types of risk~~

~~into a single risk measure. This measure estimates the amount of capital an AI requires to protect itself against all risks with a certain degree of confidence.~~ Nevertheless, this approach is not mandatory.

4.4.2 AIs using risk-modelling techniques to assess capital adequacy should ensure that their CAAP is~~must be~~ a comprehensive process seeking to identify their capital needs on the basis of both quantifiable and non-quantifiable risks. AIs should not rely on quantitative methods alone to assess capital adequacy. Non-quantifiable risks, if material, should also be included using qualitative assessment and management judgement. For example, in modelling the potential consequences of individual risks, account needs to be taken not only of the immediate direct profit and loss impact of possible loss events, but also of their potential consequential cost in terms of damage to AIs' reputation and future earning capacity.

4.4.3 Under no circumstances should the CAAP be a process which focuses only narrowly on the calculation and use of allocated capital or economic value added for individual products or business lines for internal profitability analysis. This approach can be important to an AI in targeting activities for future growth or cutbacks. However, the AI is required to first determine (by some methods) the amount of capital necessary for each activity or business line as a tool for evaluating the overall capital adequacy of the AI. Thus, the process for determining the necessary capital should not be confused with the related management efforts to measure relative returns of the AI or of individual business lines, given an amount of capital already invested or allocated.

4.4.4 AIs must have in place adequate policies, controls and procedures ~~in place~~ to validate, on a regular basis, the methodology and data and the robustness of the systems and processes involved in modelling the probabilities and potential consequences of individual

risks and their aggregation. Such policies, controls and procedures should be appropriate for their nature of business and level of sophistication, as well as the relative importance of each component of the CAAP. The internal validation process should encompass, but should not be limited to, the collection and review of developmental evidence, process verification, benchmarking, outcomes analysis, and monitoring activities used to confirm that processes are operating as designed. AIs should also be able to demonstrate that their ~~internal~~ validation process is adequate to enable them to assess the performance of the risk-modelling techniques consistently and meaningfully.

4.4.5 The MA will assess whether the overall assessment and validation processes are commensurate with the nature, size and complexity of the AI's business and whether the outcomes generated from the processes are reasonable. The MA will also assess the extent to which the risk-modelling techniques, and the risk-adjusted performance measurement they support, are actually employed in managing the AI's business. AIs should understand that it would be difficult to assign much credibility to a model in which the AI concerned lacked either the confidence or the perceived need to use it to drive its business decisions.

4.5 Requirements for consolidated capital

4.5.1 AIs are required to conduct their CAAP on a consolidated basis if they have any subsidiary that is subject to §98(2A) of the Banking Ordinance.

4.5.2 AIs conducting their CAAP at the group level should ensure that their consolidated capital is adequate to :

- support the volume and risk characteristics of all parent and subsidiary activities; and
- provide a sufficient cushion to absorb potential losses arising from such activities.

4.5.3 AIs should also be able to demonstrate to the satisfaction of the MA that :

- their CAAP has been conducted on a consolidated basis and the total capital estimated as appropriate for the group has been allocated to each group member, according to their risk profile;
- all group members, including the AI itself, have fully evaluated the risks they face (including reputation risk arising from the failure of another group member, and the risks they face due to exposure to, or dependence ~~up~~on, other group members);
- capital is freely transferable within the group (even in situations where the group is under financial stress, especially in relation to the group's cross-border operations where jurisdiction issues come into play); and
- in case there is capital that is not, and the likelihood that it will not be, freely transferable between legal entities within the group, the CAAP has been adjusted to exclude such capital from the capital adequacy assessment.

4.5.4 In assessing the ~~consolidated~~ capital adequacy of the consolidated position, the MA will apply the same standards and requirements as required for assessing the capital adequacy of an AI on a solo basis.

4.6 Application to subsidiary AIs

4.6.1 Unless otherwise specified in paras. 2.5.3[14] and 4.6.2, all subsidiary AIs are required to ensure that they are adequately capitalised on a stand-alone basis and have their own CAAP which is commensurate with, and proportionate to, the nature, size and complexity of their

[14] Under para. 2.5.3, a local banking group may develop a group CAAP covering the positions of its subsidiary AIs if their capital is centrally managed at the group level.

business in Hong Kong for supervisory review purposes. The MA will continue to exercise his legal duty under the Banking Ordinance to monitor their capital adequacy and their compliance with the minimum capital requirements through the SRP.

4.6.2 Where appropriate, subsidiary AIs of a foreign banking group may adopt the CAAP methodology used by their parent bank at the group level or, if their capital is centrally managed at the group level, rely on the group CAAP for assessing their capital adequacy. This is on the basis that the group CAAP is conducted in accordance with supervisory standards and criteria that are comparable with those required by the MA, and that the CAAP outcome for the subsidiary AIs has taken into account their local business strategies and associated risks.

4.6.3 In addition, those foreign-owned subsidiary AIs that apply the group CAAP for assessing their capital adequacy should be able to explain and demonstrate to the satisfaction of the MA how the capital assessment or allocation is made and how the assessment process meets the relevant supervisory standards and criteria. They should also have the primary responsibility of providing the MA with any information, documentation and evidence that he may require for conducting the SRP. For example, the MA may require a subsidiary AI to provide an independent review or audit report in relation to the adequacy and integrity of the overall assessment process and/or the validity of the models used for the assessment.

4.6.4 If a foreign-owned subsidiary AI is unable to satisfy the above-mentioned criteria, the AI will be required to establish and maintain its own CAAP in Hong Kong to meet the MA's supervisory standards.

4.6.5 In reviewing the capital adequacy of foreign-owned subsidiary AIs, the MA will also take into account the strength and availability of parental support and other relevant input from the home supervisor. For example,

the MA may request the home supervisor to provide information and comments in respect of the capital adequacy of the parent bank or the results of its evaluation of the group CAAP systems.

4.6.6 The Board and senior management of subsidiary AIs should note that their responsibility as mentioned in para. 4.2.1 remain unchanged in any circumstances.

4.7 Review by the MA

4.7.1 In reviewing and evaluating an AI's CAAP, the MA will have regard to the supervisory standards set out in this section. Key factors to be considered include:

- the soundness of the overall CAAP given the nature and scale of the AI's business activities;
- the degree of management involvement in the process, for example, whether the target and actual capital levels are properly monitored and reviewed by the Board (or a designated committee) and senior management;
- the extent to which the internal capital assessment is used routinely within the AI for decision-making purposes;
- the extent to which the AI has provided for unexpected events in setting capital levels;
- the reasonableness of the outcome of the CAAP in terms of whether:
  - the amount of capital required as demonstrated by the CAAP is sufficient to support the risks faced by the AI; and
  - whether the levels and composition of capital chosen by the AI are comprehensive, relevant to the current operating environment, and

appropriate for the nature and scale of the AI's business activities.

4.7.2 AIs should be able to explain and demonstrate to the satisfaction of the MA :

- how their CAAP meets supervisory requirements;
- how their material risks are defined, categorised and measured (if their own terminology is adopted), and how their approach relates to their obligations under the minimum capital requirements; and
- how the internal capital targets are chosen and how these targets are consistent with their overall risk profile, current operating environment as well as current and planned business needs.

AIs are also expected to explain the similarities and differences between the level of capital calculated under their CAAP and their regulatory capital requirements.

4.7.3 The MA expects that AIs with complex operations should have a more structured and well-defined risk management framework to monitor the effectiveness of internal control processes and risk exposures. However, for AIs with simple organisational structures and less complex operations and activities, the MA considers that a less sophisticated firm~~institution~~-wide risk management framework is entirely appropriate.

4.7.4 In assessing whether AIs have sufficient capital to enable them to stay in business, the MA will not rely solely on capital ratios as indicators of capital strength. The MA will consider, among other things, the capacity of an AI's capital structure to absorb losses and how this structure could be adversely affected by changes in performance[15]. The MA recognises that core capital is

[15] For example, an AI experiencing a net operating loss (perhaps due to realisation of unexpected losses) will not only face a reduction in its retained earnings but also possible constraints on its access to capital markets. These constraints could be exacerbated if detrimental conversion options

an important component of an AI's capital structure because it allows AIs to absorb losses on an ongoing basis and is permanently available for this purpose. It also allows AIs to conserve resources when they are under stress as it provides full discretion as to the amount and timing of dividends and other distributions. Therefore, AIs should determine the optimal level of core and supplementary capital to be maintained to meet their capital goals.

4.7.5 If an AI's CAAP does not meaningfully link the identification, evaluation and monitoring of the risks that arise from its business activities to the determination of its capital needs, the MA will require the AI to improve the CAAP for better integration with internal risk measurement and analysis. The MA will monitor the progress made by the AI in implementing the corrective actions.

4.7.6 Where the amount of capital which the MA considers that the AI should hold is not the same as that generated from its CAAP (particularly where the amount of capital generated is lower than that expected by the MA), the MA will discuss the difference with the AI. The MA will take into consideration the results of the CAAP and any explanations from the AI in relation to the outcome and appropriateness of the CAAP when determining its minimum CAR.

4.7.7 To facilitate his review, the MA will ask for information such as the results of an AI's CAAP, together with an explanation of the process used. The MA will require the AI to provide information not only on the amount of capital it considers appropriate, but also on the composition of that capital. In the case of a group CAAP, there should be a breakdown of group capital so

---

are exercised. AIs should also note that a decrease in core capital may have further unfavourable implications for the regulatory capital position. Due to the statutory limits, the eligible amount of supplementary capital may be reduced. These adverse magnification effects could be further accentuated if adverse events take place at critical junctures for raising or maintaining capital (e.g. as term capital instruments are approaching maturity or new capital instruments are being issued).

as to facilitate evaluation of the extent to which diversification benefits have been incorporated into the underlying assumptions.

4.7.8 The MA may seek other additional information from the AI where necessary.

Annex A : List of major supervisory guidelines applicable to assessment of capital adequacy

A1 Introduction

A1.1 This annex sets out the major supervisory guidelines applicable to the assessment of AIs' capital adequacy under the SRP. The MA will have regard to AIs' compliance with the relevant supervisory standards and best practices contained in these guidelines (particularly in relation to systems and controls and corporate governance) when considering the impact of various assessment factors on an AI's capital adequacy.

A1.2 This list is provided to AIs for their reference only, and should not be regarded as a complete and exhaustive list. With a view to promoting the adoption of international standards and best practices within the banking sector, the MA will continue to issue new, and update existing, supervisory guidelines to provide guidance to AIs on various risk and control factors covered under the SRP.

A1.3 AIs should refer to the Supervisory Policy Manual and other guidelines and circulars issued by the MA for a complete set of supervisory guidelines issued to the banking industry.

A2 Guidelines under Supervisory Policy Manual by subject

Supervisory approach

SA-1 Risk-based supervisory approach
SA-2 Outsourcing

Corporate governance

CG-1 Corporate governance of locally incorporated authorized institutions *[To be updated]*
CG-2 Systems of control for the appointment of managers
CG-3 Code of conduct

Internal controls

IC-1	General risk management controls *[Being updated]*
IC-2	Internal audit function
IC-4	Complaint handling procedures
IC-5	Stress-testing *[To be updated]*
IC-6	The sharing and use of consumer credit data through a credit reference agency
IC-7	The sharing and use of commercial credit data through a commercial credit reference agency

Capital adequacy

CA-G-1	Overview of capital adequacy regime for locally incorporated authorized institutions
CA-G-3	Use of internal models approach to ~~measure~~calculate market risk *[To be updated]*
CA-G-4	Validating risk rating systems under the IRB ~~A~~approaches
CA-S-9	Use of the fair value option for financial instruments *[To be expanded into a new guideline on prudent valuation practices]*

Consolidated supervision

CS-1	Group-wide approach to supervision of locally incorporated authorized institutions

Credit management

Risk management

CR-G-1	General principles of credit risk management
CR-G-2	Credit approval, review and records
CR-G-3	Credit administration, measurement and monitoring
CR-G-5	Country risk management
CR-G-6	Interest recognition
CR-G-7	Collateral and guarantees
CR-G-8	Large exposures and risk concentrations *[To be updated]*
CR-G-9	Connected lending
CR-G-10	Problem credit management

CR-G-12 Credit derivatives *[To be expanded and retitled "Credit risk transfer"]*
CR-G-13 Counterparty credit risk management

Specific lending activities

CR-S-2 Syndicated lending
CR-S-4 New share subscription and share margin financing
CR-S-5 Credit card business

Interest rate risk management

IR-1 Interest rate risk management

Liquidity risk management

LM-1 Liquidity risk management *[Being updated]*

Operational risk management

OR-1 Operational risk management

Reputation risk management

RR-1 Reputation risk management *[Under review]*

Strategic risk management

SR-1 Strategic risk management *[Under review]*

Trading activities

TA-1 Market risk management *[Under development]*
TA-2 Foreign exchange risk management

Technology risk management

General technology risk management

TM-G-1 General principles for technology risk management

TM-G-2 Business continuity planning

Electronic banking

TM-E-1 Supervision of e-banking
TM-E-2 Regulation of advertising material for deposits issued over the internet

Securities and leveraged foreign exchange business

SB-1 Supervision of regulated activities of SFC-registered authorized institutions
SB-2 Leveraged Foreign Exchange Trading – Conduct of Unsolicited Calls

Mandatory Provident Fund

MP-1 Supervision of Mandatory Provident Fund intermediaries

Disclosure

FD-1 Financial disclosure by locally incorporated authorized institutions *[To be updated]*
FD-2 Interim financial disclosure by locally incorporated authorized institutions *[To be updated]*
CA-D-1 Guideline on the application of the Banking (Disclosure) Rules *[To be updated]*

A3 Other Guidelines and Circulars by subject

Prevention of money laundering and terrorist financing

Dec 2000 Guideline on prevention of money laundering
Ju~~n~~ly 2004~~8~~9 Supplement to the Guideline on prevention of money laundering and interpretative notes
~~Jun 2004 Interpretative notes~~

Credit risk management

Apr 1991 Lending to stockbrokers

Aug 1992 Motor vehicle financing
Sep 1994 Property lending
Sep 1994 Loan classification system
Nov 1994 Loan classification system
Mar 1995 The provision of mortgage finance to end users in conjunction with property developers
Sep 1995 Property lending
Oct 1995 Co-financing schemes in relation to residential mortgage lending
Sep 1996 The use of personal loans to compete for residential mortgage business
Jan 1997 Criteria for property lending
Jul 1997 Property lending
Mar 1998 Credit reference agency

Market risk management

Dec 1994 Risk management of financial derivatives activities
Mar 1996 Guideline on risk management of derivatives and other traded instruments

Liquidity risk management

Jul 1996 Real time gross settlement system
Oct 1996 Real time gross settlement system
Nov 1996 Real time gross settlement system

Debt collection

Mar 1993 Debt collection
May 1996 Debt collection agencies

Compensation practices

[2009] Sound remuneration system *[New supervisory guideline to be issued and to be revised and integrated into CG-1 and IC-1 in light of implementation experience and best market practices]*

Annex B : Factors for assessing capital adequacy under SRP

B1 Introduction

B1.1 The purpose of this annex is to illustrate the MA's approach to assessing the capital adequacy of AIs by setting out the key assessment factors used by the MA under the SRP. This list is compiled for AIs' reference, and should not be regarded as a complete and exhaustive list.

B1.2 Broadly speaking, the MA's assessment under the SRP focuses on the following aspects:

- the level of inherent risks faced by an AI (in particular those risks that are not captured or adequately captured under the minimum capital requirements);
- the adequacy of the AI's systems and controls relating to each type of inherent risk;
- the AI's capital strength and capability to withstand risk (including, where applicable, the effectiveness of its CAAP);
- the adequacy of the AI's corporate governance arrangements; and
- any other factors (risk increasing or risk mitigating) that are specific to the AI concerned.

Given their common applicability to AIs, the first four items listed above are referred to as "common assessment factors". The last item is referred to as "specific assessment factors", which will be considered by the MA on a case-by-case basis.

B1.3 In reviewing the common assessment factors (particularly in respect of systems and controls and CAAP), the MA ~~will~~ places special emphasis on an AI's ongoing compliance with the Banking (Capital) Rules, including those qualifying criteria and minimum requirements to which the AI is subject (e.g. relating to the adoption of the IRB approach or IMM approach), and the extent to which the supervisory standards and best practices contained in the relevant guidelines issued by the MA (see **Annex A**) have been complied with. The MA ~~will~~ also considers the quality of the AI's systems and controls (including the level of

firm-wide oversight exercised by the Board and senior management), the manner in which business risks and activities are aggregated (and any resultant risk concentrations are identified and controlled), and senior management's track record in responding to emerging or changing risks.

B1.4 The MA ~~will~~ takes into account the business nature and the scale of operations (i.e. size, risk profile and complexity) of individual AIs and their significance to financial stability or other supervisory objectives in determining whether a factor is applicable or material to the assessment.

B1.5 The MA employs a variety of methodologies and techniques to assess the effects of these factors, including the adoption of a scoring system for the common assessment factors, which has, where appropriate, incorporated the use of stress-testing, peer group comparisons, benchmarking against industry performance and other relevant qualitative and quantitative analyses. The specific assessment factors are separately considered by the MA on a case-by-case basis, using similar methodologies and techniques.

B2 Inherent risks not captured or adequately captured under minimum capital requirements

B2.1 Credit concentration risk

- Generally, a~~This is a part of credit risk that measures the~~ risk concentration is ~~to~~ any single exposure or group of similar exposures to the same borrower or counterparty (who may be a protection provider), geographical area, industry, economic sector or other risk factors with the potential of producing losses large enough (relative to an AI's capital, earnings, total assets, or total risk exposures) to threaten the AI's financial position or ability to maintain its core operations, or of producing a material change in the AI's risk profile.

- Because lending is the primary activity of most AIs, credit concentration risk is often the major source of risk

concentration ~~risk~~ for an AI. As such, credit concentration risk is separately assessed under common assessment factors. Other sources of risk concentration (e.g. those arising from funding sources or through a combination of exposures across different risk factors), if material, are assessed under specific assessment factors (see subsection B5.1 and **Annex F** for more details).

- Credit concentration risk is normally driven by some common or correlated risk factors (e.g. changes in economic or market conditions affecting specific industries or sectors), which, in times of stress, will increase the likelihood of default of, or credit deterioration in, individual counterparties or groups of related counterparties making up the concentration. Such c~~C~~oncentration risk arises from direct exposures to counterparties and may also occur through exposures to the same credit protection provider or the same type of credit protection obtained.

- In assessing the level of credit concentration risk, the MA ~~will~~ pays particular attention to the sources of risk concentration arising from:

  - large exposures to individual counterparties or groups of related counterparties (including credit protection providers);

  - "clustered" loan portfolios (i.e. portfolios with a large number of sizable single exposures);

  - business activities (including lending, trading and investment);

  - exposures to particular economic sectors or geographical locations;

  - concentration of exposures by product, service, market or collateral; and

  - other concentrations, such as those arising from concentration on a particular type of off-balance sheet

exposures (e.g. credit derivatives or other complex financial instruments).

B2.2 Residual operational (and legal) risk

- Gross income, used in the basic indicator approach and the standardised approach for the calculation of operational risk capital charge, is only a proxy for the scale of operational risk exposures of an AI and can, in some cases (e.g. for AIs with low earnings or profit margins ~~or profitability~~), underestimate the capital to be charged on operational risk. There is thus a need to determine any residual risk of operational loss resulting from an AI's internal processes, staff and systems, or from external events (including lawsuits).

- In conducting the SRP, the MA ~~will~~ considers whether the level of operational risk capital imposed on individual AIs can adequately reflect their operational risk exposures, for example, in comparison with other AIs of similar size and with similar operations.

- The MA ~~will~~ also reviews the nature, frequency, and materiality of operational loss events incurred by AIs, and has~~ve~~ regard to any of their business activities, functions or operational processes that may pose a higher level of operational risk (e.g. undue reliance on outsourced activities or significant operations in politically unstable areas).

B2.3 Interest rate risk in the banking book

- This is the risk to an AI's financial condition resulting from adverse movements in interest rates. The MA ~~will~~ assesses the level of interest rate risk in the banking book associated with an AI's business activities from two separate but complementary perspectives, i.e. earnings and economic value.

- In assessing the level of an AI's interest rate repricing risk, the MA ~~will~~, among other things, models a standardised 200-basis-point parallel rate shock to the AI's interest rate risk

exposures to~~and~~ measure the impact of the shock on its earnings over the next 12 months and on its economic value. The MA is~~will be~~ particularly attentive to those AIs where the impact of the shock on their economic value is more than 20% of their capital base. Where appropriate, the MA will apply stress-testing techniques, especially in assessing an AI's basis, options and yield curve risks.

- The MA will determine whether AIs whose interest rate exposures may lead to a significant decline in their earnings or economic value are exposed to a higher level of interest rate risk.

B2.4 Liquidity risk

- Liquidity is crucial to the ongoing viability of an AI. AIs' capital positions can have an effect on their ability to obtain liquidity, especially in a crisis.

- When evaluating an AI's capital adequacy, the MA ~~will~~ takes into account its liquidity risk profile and the liquidity of the markets in which it operates under both normal and stressed conditions. Factors to be considered ~~will~~ include the level, trend and volatility of the AI's liquidity ratio, its loan-to-deposit ratio and maturity profile, the stability and concentration of its funding sources, and~~or~~ other relevant qualitative factors such as its~~which are relevant for consideration such as the AI's~~ borrowing capability and access to money markets (particularly during emergency or crisis situations), its potential exposure to contingent liquidity obligations, and the availability of liquidity support from its major shareholders in case of need.

- In addition, t~~T~~he MA ~~will~~ assesses the adequacy and quality of an AI's stock of liquid assets to weather severe stress events (including prolonged market stresses), having regard to the results of liquidity stress tests conducted by the AI. In the case of retail banks, ~~also have regard to~~ their ability ~~of retail banks~~ to withstand bank-run scenarios will be further considered, based on the results of applying liquidity stress

tests to the quarterly cash flow data submitted by these banks.

B2.5 Strategic risk

- This is the risk of current or prospective impact on an AI's earnings, ~~or~~ capital, reputation or standing arising from changes in the ~~business~~ environment in which the AI operates and from adverse strategic~~business~~ decisions, improper implementation of decisions, or lack of responsiveness to industry, economic or technological changes.

- Strategic risk is a function of the compatibility of an AI's strategic goals, the ~~business~~ strategies developed to achieve the~~e~~se goals, the resources deployed to meet these goals, and the quality of implementation. The resources needed to implement an AI's strategies ~~carry out business strategies~~ are both tangible and intangible. They include capital and funding, communication channels, staffing and operating systems, delivery networks, and managerial resources and capabilities.

- In assessing an AI's level of strategic risk, the MA ~~will~~ considers a number of factors, including:

  – the compatibility or suitability of the AI's strategic goals and objectives (e.g. relative to its size and complexity);

  – the AI's responsiveness to changes in the ~~business~~ environment (including those developments resulting in economic, technological, competitive or regulatory changes);

  – the adequacy of resources (both tangible and intangible) provided by the AI to carry out strategic decisions~~business strategies~~;

  – the AI's track record in implementing strategic decisions~~business strategies~~ (such as past performance

of overseas operations and joint ventures and in offering new products and services); ~~and~~

- any adverse impact on the AI (e.g. reputation or financial position) arising from its strategic decisions; and

- any other warning signals of high potential strategic risk.

B2.6 Reputation risk

- This is the risk~~potential~~ that an AI's reputation is damaged by one or more than one reputation event[16], as reflected from negative publicity regarding the~~an~~ AI's business practices, conduct or financial condition. Such negative publicity, whether true or not, may impair ~~will affect~~ public confidence in the AI, result in costly litigation, or lead to ~~and cause~~ a decline in its customer base, business or ~~lead to costly litigation or loss of~~ revenue. ~~The MA will be particularly attentive to AIs that are more vulnerable than others to runs on deposits as a result of market rumours.~~

- The major factors that the MA ~~will~~ takes into account in assessing an AI's level of reputation risk are listed below. These are not necessarily all-inclusive, but will serve as a guide for assessment purposes:

  - the market or public perception of the financial strength of the AI's major shareholders, its management and financial stability, and the prudence of its business practices;

  - management's willingness and ability to adjust, where necessary, the AI's ~~business~~ strategies to enhance its reputation and standing (e.g. in response to changes in market perception, rules and regulations, or legal barriers) ~~where necessary~~;

[16] A reputation event includes any action, incident or circumstance in relation to an AI which induces, or is likely to induce, reputation risk for the AI. For example, such an event may arise from market rumours, severe regulatory sanctions, or heavy financial losses. Some of these events, if not acted upon swiftly and effectively, may turn into a full-blown crisis (such as a bank run).

- the AI's history of formulating business strategies and making commercial decisions that affect its financial position, business conduct and reputation, including those that reflect on the fairness and integrity of its business dealings (e.g. in relation to the provision of banking services, charging of fees, etc.);
- the AI's history of, and plans for, analysing risk in new products and services, developing relevant policies and conducting due diligence;
- the nature and volume of customer complaints and management's ~~ability and~~ willingness and ability to respond to those complaints;
- management's ability to handle any scandal or negative publicity to minimise damage to the AI's reputation;
- the existence of highly visible or conspicuous litigation (and historical losses arising from such litigation);
- the level of the AI's exposures associated with off-balance sheet vehicles (e.g. exposures to sponsored securitization structures), and its history of, or potential for, providing implicit support to such vehicles in times of stress due to reputation considerations (see **Annex E** for more details);
- the existence of appropriate fiduciary or other liability insurance to mitigate potential losses arising from litigation or claims; and
- the AI's history with respect to conduct of business practices and compliance with laws and regulations, and management's willingness and ability to address concerns uncovered in internal or regulatory reviews.

- For AIs that are subsidiaries of a banking group (local or foreign) or are branches of foreign-owned banks, the MA will additionally consider whether the financial position, reputation or conduct of the parent bank or head office, ~~holding company~~ or any other member of the group could

undermine confidence in ~~is likely to damage~~ the AI through "contagion" ~~that undermines confidence~~. The risk of contagion is not confined to financial weaknesses. Adverse p~~P~~ublicity about illegal or unethical conduct by these entities ~~parent bank or holding company or any member of the group in some other way~~ may also damage the AI's reputation ~~and public confidence in the AI~~.

B3 Systems and controls relating to each type of inherent risk

B3.1 Under the SRP, the MA evaluates the adequacy and effectiveness of systems and controls for managing the eight types of inherent risk (i.e. credit, market, interest rate, liquidity, operational, legal, reputation and strategic) identified for the purposes of risk-based supervision.

B3.2 The MA's assessment of an AI's systems and controls for managing the inherent risks ~~will~~ generally include~~s~~ the following factors:

- Risk management systems – the MA ~~will~~ review~~s~~ the adequacy of the AI's risk management policies, procedures and limits as well as the effectiveness of its risk identification, measurement, monitoring and reporting processes to ensure compliance with the established policies, procedures and limits;

- Internal control systems and environment – the MA ~~will~~ assesse~~s~~ the appropriateness of the AI's organisation structure, the adequacy of its internal control systems (e.g. segregation of duties and responsibilities, risk and quality control and fraud detection) and the effectiveness of its audit and compliance functions;

- Infrastructure to meet business needs - the MA ~~will~~ review~~s~~ the capability and reliability of the AI's IT systems, the adequacy, competence and stability of management and staff resources, the appropriateness and adequacy of outsourcing arrangements as well as management oversight and controls over back-office or supporting functions located outside Hong Kong (if any);

- Other supporting systems - these ~~will~~ normally include accounting and management information systems, compilation of prudential returns and information, and systems and controls for prevention of money laundering and terrorist financing activities. The MA ~~will~~ assesses the adequacy of these supporting systems.

B3.3 The MA ~~will~~ reviews an AI's systems and controls based on the findings and results gathered from his offsite reviews or onsite examinations, and ~~will~~ makes use of any information obtained from various sources such as banking returns, prudential interviews, tripartite meetings and routine supervisory contacts. The MA will also pay attention to the timeliness and effectiveness of corrective actions taken by the AI to address deficiencies identified, whether by supervisors or other independent reviewers (e.g. internal and external auditors).

B3.4 The MA will have regard to the size, complexity and geographical diversity of an AI's business operations in determining whether the systems and controls in place are adequate and commensurate with such operations.

B4 Capital strength and capability to withstand risk (including CAAP)

B4.1 Review of CAAP

- The MA ~~will~~ assesses the CAAP of AIs that are subject to the CAAP standards set out by him against those standards. Among other things, the MA will:

  - assess the degree to which the AI's CAAP and internal capital targets have incorporated the full range of material risks faced by it;

  - review the adequacy of risk measures used in assessing internal capital adequacy and the extent to which these risk measures are used operationally in setting limits, evaluating business line performance, and evaluating and controlling risks more generally;

- consider, in particular, whether the AI's remuneration and valuation practices have any adverse effects on its capital adequacy[17];

- determine whether chosen capital targets are comprehensive and relevant to the current operating environment, and are properly monitored and reviewed by senior management;

- determine whether the composition of capital is appropriate for the nature and scale of the AI's business; and

- consider the extent to which the AI has provided for unexpected events in setting its capital levels, whether the analysis covers a wide range of external factors, conditions and scenarios, and whether the stress-testing techniques and scenarios used are commensurate with the AI's activities.

• For AIs that are not subject to the CAAP standards, the MA assesses their capital planning and management processes, taking into account their business size and complexity.

B4.2 Review of capital strength and capability to withstand risk

• An overall assessment of capital adequacy should take into account all factors that affect an AI's financial conditions. Therefore, apart from those mentioned in subsection B4.1 above, the MA will consider the following factors:

Capital structure, level and trends

- The MA ~~will~~ compares the level and trend of an AI's actual CAR with the minimum CAR assigned to the AI and with the average level of CAR maintained by its peers to determine if its CAR has been kept at prudent

[17] For example, remuneration policies that encourage excessive short-term profit-taking may pose longer-term risks to the AI, while the lack of robust valuation methodologies and procedures may understate the potential risks arising from illiquid positions.

levels. In addition, the projected asset growth and earnings performance should reasonably support an AI's ability to maintain its capital levels without undue reliance on capital injections. For a newly authorized AI, the level of its CAR should be reasonable in relation to its business plans and competitive environment.

- The MA ~~will~~ also reviews the quality of an AI's capital by analysing the composition of its capital base (e.g. the level of core capital in relation to total capital base).

Strategic planning

- The MA ~~will~~ assesses whether an AI's capital planning is supported by an effective strategic plan which should clearly outline the AI's capital needs, anticipated capital expenditures, desirable capital level, and external capital sources. The Board and senior management should regard capital planning as a crucial element for achieving the desired strategic objectives, and should effectively communicate the AI's corporate goals and objectives throughout the organisation.

Business expansion

- The MA ~~will~~ assesses whether an AI has adequate capital resources to support its business growth. The MA will pay particular attention to situations where rapid lending growth may become a cause for concern if this is achieved by reducing the AI's underwriting standards and increasing its risk profile.

Dividends

- Excessive cash dividend payments may weaken an AI's capital adequacy. The MA ~~will~~ reviews an AI's dividend policy as well as its historical and planned cash dividend payout ratios to determine whether dividend payments are impairing capital adequacy.

Access to additional capital

- AIs that do not generate sufficient capital internally may require external sources of capital. Large, independent AIs may solicit additional funding from the capital markets to support their business growth or acquisition plans. Smaller AIs may rely solely on their bank holding companies or major shareholders to provide additional funds, or on the issue of new capital instruments to existing or new investors.

- The MA ~~will~~ assesses an AI's ability to obtain additional funding from the capital markets in times of need, taking into account the potential difficulties in raising additional capital during downturns or other times of stress, and the strength and availability of its parental support in the provision of new capital. If the AI has subsidiaries and affiliates, the MA will review its commitment and responsibility to provide capital to these subsidiaries and affiliates.

- The MA ~~will~~ also expects an AI to have a plan that enables it to operate effectively throughout a severe and prolonged period of financial market stress or an adverse credit cycle, as well as contingency plans that address unexpected capital or liquidity needs ~~outlines the contingent measures for improving its capital position~~ during crisis situations.

Asset quality and provisions

- The MA ~~will~~ takes into account the potential impact of an AI's asset quality, particularly the severity of its problem and classified assets and the adequacy of its bad debt provisions, on its capital adequacy.

Earnings

- The MA ~~will~~ assesses an AI's earning ability to ascertain the stability of its capital. Poor earnings or losses can adversely affect an AI's capital adequacy by reducing the loss absorption function of remaining capital and disabling the AI from replenishing its capital internally.

Off-balance sheet items

- Once funded, off-balance sheet items ~~will~~ become subject to the same capital requirements as on-balance sheet items. The MA ~~will~~ reviews an AI's off-balance sheet activities (including securitization transactions) to assess whether its capital levels are sufficient to support those assets that would result from a significant portion of the off-balance sheet items being funded within a short time, and to evaluate the possibility of having to bring a portion of securitized assets (e.g. in respect of the AI's sponsored securitization structures) onto its balance sheet and the impact of this on its capital and financial positions (see **Annex E** for more details).

Market value of an AI's stock

- For a listed AI, its stock price is reflective of investors' confidence in, and support for, the AI, the lack of which could impair the AI's ability to raise additional capital. If an AI's stock is trading at low prices, it may indicate investors' lack of confidence in the AI, or that there are other problems besetting the AI. The MA ~~will~~ reviews whether the stock of the AI or, where applicable, its listed parent bank or holding company has been trading at reasonable prices (e.g. in terms of a reasonable multiple of its earnings or a reasonable percentage (or multiple) of its book value) and identify whether there are any concerns that warrant his attention.

Subordinated debt instruments

- The MA assesses the potential performance of an AI's capital instruments during times of stress and the ability of the instruments to absorb the AI's losses and support its ongoing business operations.

- The MA will pay particular attention to the impact of redemption (including early redemption) of subordinated debt instruments on an AI's overall capital structure. The AI should thoroughly assess such impact in case the redemption could have a material effect on the level

or composition of its capital base. If an AI plans to redeem its capital instrument with the proceeds of, or replace it by, a like amount of a similar capital instrument, the AI should consider its ability and the likelihood of doing so.

- In the review of an AI's funding and financial conditions, the MA ~~will~~ also takes into account the potential impact of redemption of subordinated debt instruments that are not eligible for inclusion in the calculation of the AI's CAR.

Unrealised asset values

- AIs may have assets on their books that are carried at significant discounts below current market values. The excess of the market value over the book value (historical or acquisition cost) of assets such as investment securities or bank premises may represent capital to the AI. While these unrealised asset values are not included in the calculation of CAR, the MA ~~will~~ takes these values into account when assessing an AI's overall capital adequacy. The MA ~~will~~, in particular, reviews the nature of the asset, the reasonableness of its valuation, its marketability, and the likelihood of its sale.

- In assessing an AI's capability to withstand risk, the MA ~~will~~ conducts sector-wide stress tests to assess individual AIs' vulnerability to severe market shocks or crisis situations (e.g. based on hypothetical scenarios that are similar to, or more severe than, those experienced during the 1997/1988 Asian Crisis). The MA ~~will~~ also considers whether those "outlier" AIs that show significant vulnerability to "stressed" situations compared with their peers warrant a higher minimum CAR and/or a reduction in risk exposures.

B4.3 Corporate governance

- A sound risk management process, strong internal controls and well documented policies and procedures are the

foundation for ensuring the safety and soundness of an AI. As such, the Board and senior management of an AI are expected to have a reasonable understanding of the nature and level of risks being taken by the AI and how such risks relate to adequate capital levels. They should also be responsible for ensuring that the formality and sophistication of the firm-wide risk management and control processes are appropriate in the light of the AI's risk profile and business plans.

- When assessing the quality of an AI's corporate governance, the MA ~~will~~ reviews the above aspects in addition to other relevant requirements as detailed in various guidelines issued by the MA. In particular, the Board and senior management will be evaluated in terms of:

  - their risk management knowledge and experience;

  - their participation and involvement in development of the AI's risk management processes; and

  - their awareness of, and responsiveness to, risk management and control issues raised by the MA.

B5 Risk increasing factors

B5.1 General

- Risk increasing factors are specific factors that will lead to a negative impact on the minimum CAR of an AI. Such factors may relate to the following issues:

  - Material risks specific to the AI's business and operations or material risk concentrations identified within the AI's business activities. For example, an AI may be exposed to business concentration risk by relying heavily on a particular business activity, or the risk posed by its non-banking activities (such as~~e.g.~~ securities dealing or insurance-related activities) is increasingly high, as a result of rapid expansion in the absence of adequate expertise and management systems;

- Significant "outliers" identified in the review of common assessment factors. These may relate to extremely high levels of inherent risk, substantial management problems or control weaknesses, or significant vulnerability to adverse economic events which warrant a full assessment of the additional capital required to cover the risks involved; and

- Specific issues arising from the application of the revised capital adequacy framework. In particular, these issues relate to an AI's ongoing compliance with various minimum standards and requirements applicable to it for the purpose of calculating regulatory capital for~~on~~ credit, market or operational risk. The MA will consider such issues under the SRP if they are not adequately catered for under the minimum capital requirements. Such issues may necessitate an AI to rectify deficiencies by improving its systems and controls or reducing its risk exposures, or to hold additional capital pending rectification of the deficiencies. See subsections B5.2 and B5.3 for consideration of such issues in relation to credit risk and market risk. Those relating to operational risk are mentioned under subsection B2.2.

- The MA will determine the extent to which the minimum CAR of an AI will be increased due to a risk increasing factor based on his assessment of the extent to which such a factor can increase the risk of the AI.

B5.2 Specific issues in relation to credit risk

Credit risk mitigation

- An AI may be exposed to residual credit risk associated with credit risk mitigation if the techniques used give rise to risks that could render the overall risk reduction less effective. Examples of these risks include:

  - inability to seize, or realise in a timely manner, collateral pledged (on default of the obligor);

- refusal or delay by a guarantor to pay; and

- ineffectiveness of untested documentation.

There may also be specific wrong-way risk if a high correlation in the creditworthiness of a credit protection provider and the obligor due to their performance being dependent on common economic factors.

- The MA will determine if there are instances suggesting the lack of appropriate policies and procedures on the part of the AI to control these residual risks.

IRB approach

- An AI's adoption of the IRB Approach may give rise to some issues which will be subject to the MA's review in determining the appropriate supervisory actions to be taken (including whether the AI's minimum CAR should be increased pending rectification of deficiencies). Examples include:

  - deficiencies or flaws identified in the IRB models;

  - deviations from the reference definition of default used for risk estimation (e.g. use of external data or historical internal data not fully consistent with the reference definition of default prescribed by the MA);

  - weaknesses arising from the application of IRB credit risk stress tests. For example, the stress-testing processes or methodologies employed may not be appropriate to an AI's circumstances or a capital shortfall is identified (i.e. capital insufficient to cover the minimum capital requirements under the IRB approach and the results of credit risk stress tests performed as a condition for using the IRB approach); and

  - inadequate systems and controls (applicable to AIs using double default treatment) in monitoring the deterioration in the credit quality of protection providers and in assessing the impact of protection providers

falling outside the eligible criteria (due to rating changes) on their capital requirements at the time of default.

Basic approach

- AIs using the basic approach are not subject to a higher capital charge for their past due exposures. If such exposures have reached a significant level compared with an AI's peers, the MA may consider whether a capital adjustment under the SRP is necessary to reflect the higher risk associated with the problem exposures.

Securitization

- The MA will watch out for any information that may call into question an AI's compliance with the relevant requirements on the recognition of risk transference for its securitization transactions. If the MA determines that the level of risk transfer for a particular transaction has been overstated and does not justify the capital relief granted, it may lead to an increase in capital requirements for the transaction concerned or, where necessary, an increase in the overall level of capital the AI is required to hold.

- Similarly, if there is indication that an AI has provided implicit support to transactions that it has securitized, the MA will consider the appropriateness of taking one or more supervisory actions (including an increase in the AI's minimum CAR) as specified in Part 7 of the Banking (Capital) Rules.

- In the event that an AI is engaged in complex securitization transactions the risks of which are not adequately accounted for under the minimum capital requirements (e.g. as a result of market innovations introducing new features to a securitization), the MA may consider imposing a specific capital treatment for such transactions or adjust the AI's minimum CAR to account for the additional risk incurred.

- The MA will also review any other issues arising from an AI's compliance with the securitization requirements (e.g. on call

options and early amortisation provisions) to determine the need for a capital adjustment or other supervisory actions.

- **Annex E** provides further discussion on the various risks associated with securitization and other off-balance sheet activities and the MA's expectations of how such risks should be managed by AIs. The MA will consider the need for additional capital or supervisory measures if there are major concerns in the way an AI addresses these risks.

B5.3 Specific issues in relation to market risk

IMM approach

- Certain issues may arise from an AI's adoption of the IMM approach for the calculation of market risk. These include:

  - deficiencies or flaws identified in the market risk internal models;

  - deficiencies arising from valuation issues, such as inappropriate valuation adjustments to less well diversified portfolios or portfolios consisting of less liquid cash instruments;

  - weaknesses arising from the application of market risk stress tests under the IMM approach. For example, the stress-testing processes or methodologies may not be appropriate or commensurate with an AI's trading activities or a capital shortfall is identified (i.e. capital insufficient to cover the minimum capital requirements under the IMM approach and the results of stress tests performed as a condition for using the IMM approach);

  - weaknesses arising from capturing specific risk under the IMM approach. For example, model effectiveness is undermined by positions with limited price transparency

or by illiquid positions, or the approach to capturing incremental risks[18] ~~default risk~~ is inadequate.

- The MA will determine the appropriate supervisory actions to be taken in respect of these issues (including whether the AI's minimum CAR should be increased pending rectification of weaknesses). In the case of weaknesses in respect of the AI's specific risk models, the MA may direct the AI to use the STM approach to calculate specific risk.

B6 Risk mitigating factors

B6.1 Risk mitigating factors are specific factors that will have a positive impact on an AI's minimum CAR. They are used by the MA as incentives for AIs to improve their risk management so that the level of their inherent risks can be effectively mitigated. Examples which may be considered as risk mitigating factors include:

- AIs using less advanced approaches for calculating credit or operational risk, but possessing IRB/AMA capabilities for risk management purposes;
- risk mitigating effect of insurance cover recognisable under AMA;
- diversification benefits (this is however subject to AIs being able to demonstrate a credible and robust methodology for assessing such benefit).

B6.2 The MA will determine whether an AI has any risk mitigating factor that can be recognised for capital adequacy purposes, in consultation with the AI concerned. Each case will be considered based on its own merits. To facilitate his assessment, the MA may require the AI to submit any such information or documentary evidence as is deemed necessary to justify the risk mitigating effect of the factor under consideration.

[18] These include default risk and credit migration risk that are incremental to the risks captured in the VaR model.

B6.3 The MA will determine the extent to which the minimum CAR of an AI can be reduced due to a recognised risk mitigating factor based on his assessment of the extent to which such a factor can mitigate the risk of the AI.

Annex C : Scoring worksheets to facilitate assessment under SRP

SCORECARD

	Ref.	Scoring *			Score obtained		Comments	Annex
		Maximum score	Maximum score	Maximum score	Current period	Last period		
A. Specific risks not directly / fully captured under Pillar 1 (1)								
Credit concentration risk	A1	L	M	H				
Interest rate risk in the banking book	A2	L	M	H				
Liquidity risk	A3	L	M	H				
Residual operational risk	A4	L	M	H				
Reputation risk	A5	L	M	H				
Strategic risk	A6	L	M	H				
B. Systems and controls (2)								
Risk management system	B1	S	A	W				
Internal control system and environment	B2	S	A	W				
Infrastructure to meet business needs	B3	S	A	W				
Other support systems	B4	S	A	W				
C. Capital strength and capability to withstand risk (3)								
Capital adequacy assessment process	C1	S	A	W				
Capital strength and capability to withstand risk	C2	E	S	U				
D. Corporate governance (4)	D1	E	S	U				
TOTAL SCORE OBTAINED								
SCORE CONVERTED INTO MINIMUM CAR								
RISK MITIGATING FACTORS (- %)								
RISK INCREASING FACTORS (+ %)								
MINIMUM CAR RECOMMENDED								
EXISTING MINIMUM CAR								
OBSERVATION PERIOD BEFORE ADJUSTING MINIMUM CAR (if necessary)								
MINIMUM CAR APPROVED								

Notes :

(1) L = Low, M = Moderate, H = High
(2) S = Strong, A = Acceptable, W = Weak
(3) S = Strong, A = Acceptable, W = Weak / E = Excellent, S = Satisfactory, U = Unsatisfactory
(4) E = Excellent, S = Satisfactory, U = Unsatisfactory

* *The maximum score for all 13 templates (template number shown under "Ref." column) is 100, i.e. the worst possible score that an AI can get. The scores allocated in the shaded areas are purposely not disclosed and subject to HKMA's periodic review.*

CREDIT CONCENTRATION RISK (A1) P.1 of 2

Position as at DD/MM/YYYY

1. **Concentration in lending activities**

1a. **Credit concentration in industry / economic sectors**

Return item	O/S Balance HK$m	As % of T.L.	As % of T.A.	As % of C.B.	Benchmark exceeded?	Risk-weight	RW Exposure HK$m
(a) Residential mortgages H5(a) & H5(b)							
(b) Credit card advances H5(c)							
(c) Other loans to professional and private individuals H5(d) & H5(e)							
(d) Property dev. and inv. B1(e) & B2(e)							
(e) Taxi and PLB loans G3 & G4							
(f) Share financing H3(c) & H4(c)							
(g) Trade financing J							
(h) Others (if concentrated) :							

Aggregate of RW exposure from 1a — HK$m: — % of C.B.: — Score obtained: — Maximum score:

PLUS

Aggregate of additional RW exposure from 1b — HK$m: — % of C.B.: — Score obtained: — Maximum score:

1b. **Business concentration arising from lending activities**

T.L as % of total assets

Return item	RW Exposure HK$m	Sectoral exposures O/S Balance HK$m	Sectoral exposures As % of T.L.	Criteria met?	Multiplier	Additional RW Exposure HK$m
(a) Residential mortgages H5(a) & H5(b)						
(b) Credit card advances H5(c)						
(c) Other loans to professional and private individuals H5(d) & H5(e)						
(d) Property dev. and inv. B1(e) & B2(e)						
(e) Taxi and PLB loans G3 & G4						
(f) Share financing H3(c) & H4(c)						
(g) Trade financing J						
(h) Others (if concentrated) :						

Exposures / claims considered concentrated / large if any of the benchmarks is exceeded	Benchmarks (% of) T.L.	T.A.	C.B.
Concentration criteria for 1a:			
Residential mortgages			
Credit card advances			
Loans to professional & private individuals			
Property development and investment			
Taxi and PLB loans			
Share financing			
Trade financing			
Other economic sectors (individual)			
- Return items : A1(c); 2, 3, 4, 5(c); 6, 7, 8, 9; B3; C; D; E3; F; G1; 2, 5; H1, 2(e), 6; and K			
Concentration criteria for 1b with reference to:			
(a) Total loans (T.L.) as percentage of total assets;			
(b) Exposures in each sector as percentage of T.L.; and			
(c) Sum of exposures in two or more sectors exceeding certain percentage of T.L.			

CREDIT CONCENTRATION RISK (A1)

P.2 of 2

	Position as at DD/MM/YYYY	HK$m	% of C.B.	Score obtained	Maximum score
2. Concentration in negotiable debt instruments held					
2a. Credit concentration in negotiable debt instruments (NDIs) held	Aggregate of RW exposure from 2a				
(a) Negotiable certificate of deposits (NCDs)	PLUS				
(b) NDIs other than NCDs (Other NDIs)	Additional RW exposure from 2b				
Total					
2b. Business concentration arising from trading or investment in NDIs					
Total NDIs as % of total loans					
Total NDIs held					
3. Geographical concentration	No. of countries				
(a) Large cross-border claims on countries with sovereign rating equal to or above A- (S&P) / A3 (Moody's) / A- (Fitch)	Aggregate Largest				
(b) Large cross-border claims on countries with sovereign rating below A- (S&P) / A3 (Moody's) / A- (Fitch) / without ratings	Aggregate Largest				
4. Concentration of exposure to non-bank Chinese entities	Aggregate				
5. Concentration of exposure to counterparties	No. of large exposures				
(a) Non-exempt large exposures	Aggregate Largest				
(b) Large bank exposures	No. of large exposures				
	Aggregate Largest				
(c) Aggregate of large exposures to non-bank connected parties	Aggregate				
6. Other concentrations					
				Score obtained	

Total NDIs held	Total RW Exposure HK$m	Portfolio mix NCDs %	Portfolio mix Other NDIs %	Additional RW Exposure HK$m

	O/S Balance HK$m	As % of T.L.	As % of T.A.	As % of C.B.	Benchmark exceeded?	Risk-weight	RW Exposure HK$m
(a) Negotiable certificate of deposits (NCDs)		N.A.					
(b) NDIs other than NCDs (Other NDIs)		N.A.					
Total							

Exposures / claims considered concentrated / large if any of the benchmarks is exceeded	Benchmarks (% of) T.L.	T.A.	C.B.
Concentration criteria for 2a:			
NCDs	N.A.		
Other NDIs	N.A.		
Concentration criteria for 2b:			
Total NDIs held	N.A.	N.A.	
Claims on individual countries	N/A	N/A	
Claims on individual countries	N/A	N/A	
Total exposure	N/A	N/A	
Non-exempt exposures under S.81 of BO	N/A	N/A	
Bank exposures	N/A	N/A	
Exposures to non-bank connected parties	N/A	N/A	

Note : All figures in the shaded areas are purposely not disclosed and subject to HKMA's periodic review.

INTEREST RATE RISK IN THE BANKING BOOK (A2)

	Assessment results	Score obtained	Maximum score
1. Repricing risk			
Scenario : 200 basis point parallel interest rate movement for all currencies			
(a) Impact on AI's earnings (absolute sum of all currencies)			
Position HK$'m: End-Q1 / End-Q2 / End-Q3 / End-Q4 — Average Impact — Score obtained (i) (ii)	Impact on earnings - Average score of (i) and (ii)		
Impact amount - As % of average annual operating results before provision for the past 3 years - As % of capital base at reporting date			
(b) Impact on AI's economic value (absolute sum of all currencies)			
Position HK$'m: End-Q1 / End-Q2 / End-Q3 / End-Q4 — Average Impact — Score obtained	Impact on econ. value		
Impact amount - As % of capital base at reporting date			
2. Basis risk			
(a) Scenario : All rates except fixed and managed rates on interest-bearing assets rise by 200 basis points and last for 12 months.			
Position HK$'m: End-Q1 / End-Q2 / End-Q3 / End-Q4 — Average Impact — Score obtained			
Impact amount on AI's earnings (absolute sum of all currencies) - As % of average annual operating results before provision for the past 3 years - As % of capital base at reporting date			
Average score obtained (iii)			
(b) Scenario : Managed rates on interest-bearing assets drop by 200 basis points and last for 12 months while other rates remain unchanged.			
Position HK$'m: End-Q1 / End-Q2 / End-Q3 / End-Q4 — Average Impact — Score obtained	Impact on earnings - Higher score between (iii) and (iv)		
Impact amount on AI's earnings (absolute sum of all currencies) - As % of average annual operating results before provision for the past 3 years - As % of capital base at reporting date			
Average score obtained (iv)			
3. Options risk			
Condition (a) : RML > 20% of total loans	Condition (b) : Weighted average yield of RML > Yield of 1-year Exchange Fund Bills		
RML amount HK$'m Total loans HK$'m % of RML	Weighted average yield of RML Yield of 1-yr Exchange Fund Bills Yield differential		
If both (a) and (b) are met, assume 30% of RMLs are repaid before maturity date	Position DD/MM/YYY		
Impact amount on AI's earnings (i.e. RML amount x 30% x Yield differential) - As % of average annual operating results before provision for the past 3 years - As % of capital base at reporting date	HK$'m Score obtained (v) (vi)		
	Impact on earnings - Average score of (v) and (vi)		
4. Yield curve risk (Please assess the impact of yield curve risk, if material, on the AI's earnings. Details of assessment should be shown below or separately.)			
	Impact on earnings		

Note : All figures in the shaded areas are purposely not disclosed and subject to HKMA's periodic review.

LIQUIDITY RISK (A3)

	Assessment results	Score obtained	Maximum score
1. Statutory liquidity ratio ("liquidity ratio") and its volatility			
Position Liquidity ratio Lowest liquidity ratio (1st month, 2nd month, 3rd month, 4th month, 5th month, 6th month)	Average in the past 12 months (liquidity ratio)		
Position Liquidity ratio Lowest liquidity ratio (7th month, 8th month, 9th month, 10th month, 11th month, 12th month)	Volatility in the past 12 months		
Notes: (a) For large AIs with total assets after provision > HK$100 billion, no score will be assigned to them under liquidity ratio if the average of their monthly liquidity ratios in the past 12 months is greater than 50%. (b) For AIs with high liquidity (i.e. their lowest liquidity ratio in the past 12 months > 100%), no score will be assigned to them under liquidity volatility. Position (DD/MM/YYYY) Total Assets After Provision (HK$'m) Lowest liquidity ratio in past 12 months			
2. Trend of the liquidity ratio			
Observation period (MM/YY - MM/YY) Monthly decline * t-value calculated / t-critical value (* No t-test is required in case of increase)	Monthly decline		
3. Adjusted loan-to-deposit ratio for HK Office *(Applicable to banks except those exempted by HKMA)* Position (DD/MM/YYYY) Adjusted loan-to-deposit ratio in all currencies	Adjusted L/D ratio		
4. Stress test on cash flow position *(Applicable to banks except those exempted by HKMA)* Stressed position (DD/MM/YYYY) Number of days AI can withstand deposit withdrawals / Score obtained Scenario : Daily deposit run-off at (higher % *) Case (a) : Without LOLR support Case (b) : With LOLR support Scenario : Daily deposit run-off at (lower % *) Case (c) : Without LOLR support Case (d) : With LOLR support * To be determined by HKMA	Scenario with highest score obtained : No. of days AI can withstand deposit withdrawals		
	Sub-total c/f		

LIQUIDITY RISK (A3)

	Assessment results	Score obtained	Maximum score
5. Maturity mismatches *(Applicable to exempt banks under items 3 and 4, RLBs and DTCs)*	Sub-total b/f		
Position DD/MM/YYYY — From AI's internal MIS report (HK$'m): < 1 month / 1 - 3 months / > 3 months	Negative cumulative position with highest score		
Net position (including on- and off-balance sheet items)			
Cumulative position			
If cumulative position is -ve, check which of the following cases is applicable			
Score obtained (maximum to be given if no information available for assessment)			
Cases :			
(a) negative position fully covered by the amount due to parent bank			
(b) negative position fully covered by : (i) the amount due to other group companies / connected parties; or (ii) the combined funding sources from (a) & (b)(i)			
(c) negative position fully covered by : (i) irrevocable funding sources; or (ii) the combined funding sources from (a), (b)(i) & (c)(i)			
(d) negative position not covered or fully covered by the above funding sources			
6. Concentration of funding sources	As % of total liab.		
Position DD/MM/YYYY — HK$'m — As % of total liabilities	Largest customer deposit Largest bank borrowing		
Total amount of 10 largest customer deposits			
Total amount of 10 largest bank borrowings			
7. Qualitative assessment	Overall rating		

Factors for assessment	Rating	1	2	3	4	5
Access to capital, money markets or other sources of cash (including perception of market analysts on AI's name and financial standing)		Highly capable	Capable	Slightly difficult	Difficult and at high cost	Very difficult and at very high cost
Strength of parental support		Very strong	Strong	Marginal	Difficult	Impossible
Borrowing capability		Highly capable	Capable	Slightly difficult	Difficult and at high cost	Very difficult and at very high cost
Cost of funds		Very low	Low	Marginally acceptable	High	Very high
Stability of customer deposits		Highly stable	Stable	Some degree of volatility	Unstable	Highly unstable

7. Qualitative assessment *(continued)*

Factors for assessment	Rating	1	2	3	4	5	Assessment results	Score obtained	Maximum score
Whether major fund providers are linked by common investment objectives or economic influences (e.g. deposits from large corporates or private banking clients more sensitive to credit risk and interest rates)		Very low correlation	Low correlation	Acceptable correlation	High correlation	Very high correlation			
Reliance on specific markets to obtain liquidity (e.g. interbank and wholesale markets)		None or very minimal	Minimal	Some	Heavy	Very heavy			
Reliance on specific types of providers / products (e.g deposits solicited at high rates and internet deposits) / activities (e.g. secured funding / securitization) to generate funds		None or very minimal	Minimal	Some	Heavy	Very heavy			
Potential for providing liquidity support for contingent liquidity obligations (whether contractual or non-contractual) (e.g. exposures to SIVs / conduits etc.)		Very low	Low	Moderate	High	Very high			
Adequacy of stock of liquid assets to withstand stress events (including prolonged market stress) as indicated by AI's internal stress-testing results or other relevant sources		More than enough	Adequate	Marginally adequate	Slightly inadequate	Large shortage or test results not reliable / unreasonable			
Quality of stock of liquid assets maintained		Very high	High	Marginally acceptable	Low	Very low			
Warning signals for a potential liquidity problem		None or not identified	A few but insignificant	Some but insignificant	Some and significant	Many and significant			
Overall rating									
							Score obtained		

Note : All figures in the shaded areas are purposely not disclosed and subject to HKMA's periodic review.

RESIDUAL OPERATIONAL RISK (A4)

Factors for assessment	Rating	Low (L)	Moderate (M)	High (H)	Comments	Annex
1. Operational risk arising from material business activities / functions						
(a) Operational changes resulting from consolidation, acquisitions, mergers or de-mergers		None / minimal	Small to medium scale	Large scale		
(b) Business expansion / growth		Normal	Significant	Aggressive		
(c) Business locations in unstable political / social environment or exposed to other external vulnerabilities (e.g. flood / earthquake)		None / minimal	Limited	Significant		
(d) Nature of banking business activities and transaction volume		Simple / traditional; low	Simple / traditional; moderate to high	Complex; moderate to high		
(e) Nature of non-banking business activities (e.g. MPF, insurance, securities or asset management, etc.) and transaction volume		Simple / traditional; low	Simple / traditional; moderate to high	Complex; moderate to high		
(f) New business activities / risky products		None / minimal	Limited	Significant		
(g) Additional risk arising from the use of risk mitigation techniques		None / minimal	Limited	Significant		
(h) Reliance on outsourcing services		None / minimal	Some	Heavy		
(i) Provision of insourcing services		None / minimal	Some	Extensive		
(j) Operational processes which may result in significant systemic impact for the banking sector (e.g. notes issuance or clearing / settlement function for a particular currency or banking product)		None	Moderate significance	Serious significance		
2. Potential losses arising from operational loss events						
(a) Execution, delivery and process management - Loss events : Any operational weaknesses / deficiencies in transaction capture, execution and maintenance / monitoring and reporting / customer intake and documentation / customer or client account management; disputes with trade counterparties or vendors, etc. - Key risk indicators : Shortage of manpower; high staff turnover; high percentage of temporary staff / new staff; consistent / repeated work overtime; model / system misoperation; high proportion of unmatched trades / unmatched payments / aged confirmation - Loss experience resulting from these events in the past three years		Low	Moderate	High		
(b) Business disruption and system failures - Loss events : Utility outage / disruptions; malfunction of software or hardware; breakdown of telecommunications, etc. - Key risk indicators : Number and nature of system / IT failures - Loss experience resulting from these events in the past three years		Low	Moderate	High		

RESIDUAL OPERATIONAL RISK (A4)

Factors for assessment	Rating	Low (L)	Moderate (M)	High (H)	Comments	Annex
2. Potential losses arising from operational loss events *(continued)*						
(c) Clients, products and business practices - Loss events : Unintentional / negligent failure to meet professional obligation to specific clients (e.g. failure to comply with the code of banking practice / fiduciary, suitability or disclosure requirements); improper business / market practices; product flaws (e.g. product defects or model errors); disputes over performance of advisory activities; failure to investigate client per guidelines (e.g. know your customer); exceeding client exposure limits, etc. - Key risk indicators : Outstanding litigation; history of customer complaints (number and nature); track records of mis-handling or mis-using customer assets / confidential customer information; number of fiduciary breaches / guideline violations / other non-compliance cases; aggressive sales; insider trading (on the AI's account); unlicensed activity; market manipulation - Loss experience resulting from these events in the past three years		Low	Moderate	High		
(d) Internal and external fraud - Loss events : Unauthorised activities; misappropriation of assets; malicious destruction of assets; forgery; check kiting; bribes; collusion; insider trading (not on AI's account); systems security; theft and robbery, etc. - Key risk indicators : No. of successful hacking cases against systems security; number of successful claims against credit card fraudulence - Loss experience resulting from these events in the past three years		Low	Moderate	High		
(e) Employment practices and workplace safety - Loss events : Acts inconsistent with laws / agreements relating to health, safety or employment; labour disputes (including compensation, termination, benefit and discrimination); personal injury claims from general liability, etc. - Key risk indicators : Claims from staff or other third parties; track records of breaking the relevant laws or agreements - Loss experience resulting from these events in the past three years		Low	Moderate	High		
(f) Loss or damage to physical assets arising from external sources - Loss events : Accidents; natural disaster; terrorism; vandalism; any other events of a similar nature - Key risk indicators : Claims for personal injury or human losses from external sources - Loss experience resulting from these events in the past three years		Low	Moderate	High		
(g) Other warning signals of high potential operational risk (list below)		None or not identified	Moderate significance	Serious significance		
Overall rating		Maximum score	Maximum score	Maximum score		
Score obtained						

Note : All figures in the shaded areas are purposely not disclosed and subject to HKMA's periodic review.

REPUTATION RISK (A5) P.1 of 2

The factors listed below should be used when assessing the overall level of reputation risk. The suggested questions are not necessarily all-inclusive, but should serve as a guide to be used in determining the risk rating for each factor.

Factors for assessment	Rating	Low (L)	Moderate (M)	High (H)	Comments	Annex
1. Market / public perception (a) Is there a general perception that the financial position of the AI's major shareholders is adequate or strong? (b) Is there a general perception that the management and financial position of the AI is adequate or strong? (c) Is there a general perception that the complexity and riskiness of the AI's business activities are commensurate with its size and operations and risk management capacity? (d) Is the AI's management willing and able to adjust business strategies based on market perception?		Strong	Acceptable	Weak		
2. New business development (a) Does the AI have a well developed plan for introducing or acquiring new business activities? (b) Does the AI have a successful track record in: - launching new business lines, products or services; or - acquiring new subsidiaries / businesses (e.g. a mortgage or credit card portfolio)? (c) Is the AI's management willing and able to adjust business strategies based on regulatory changes or legal barriers? (d) Does the AI have a successful track record in formulating business strategies and making commercial decisions that bolster its financial position, business conduct and reputation (including the fairness and integrity of its business dealings)? (e) Is the AI's management willing and able to analyse risk in new products and services, develop relevant policies and conduct due diligence?		Strong	Acceptable	Weak		
3. Nature and volume of customer complaints (a) Is the volume of customer complaints acceptable based on the AI's size and complexity of business? (b) Are there any customer complaints that are indicative of serious supervisory concern? (c) Are there any customer complaints that have resulted (or likely to result) in substantial compensation or an adverse impact on the AI's reputation? (d) Is the AI's management willing and able to respond to customer complaints?		Insignificant	Moderate	Serious		
4. Litigation (a) Is there any highly visible or conspicuous litigation? (b) Are there any litigation cases that have resulted (or are likely to result) in substantial financial losses or an adverse impact on the AI's reputation?		Insignificant	Moderate	Serious		

REPUTATION RISK (A5)

Factors for assessment	Rating	Low (L)	Moderate (M)	High (H)	Comments	Annex
5. Negative publicity (a) Has the AI experienced any scandal or negative publicity that has resulted in substantial financial losses or an adverse impact on its reputation? (b) Has the AI's management properly handled such events and taken adequate remedial actions to minimise the damage to reputation caused?		No	Insignificant	Serious		
6. Compliance with laws and regulations (a) Are there frequent cases of non-compliance with laws and regulations (particularly in the conduct of asset management, investment advisory and securities dealing activities as well as the compliance with regulatory requirements to combat money laundering and terrorist financing)? (b) Are there any cases of non-compliance that are indicative of serious supervisory concern? (c) Have significant findings about the AI's regulatory compliance, conduct and business practices been uncovered in internal and regulatory reviews? (d) Is the AI's management willing and able to respond to these findings?		Strong	Acceptable	Weak		
7. Fiduciary or other liability insurance Is there appropriate fiduciary or other liability insurance to cover the AI's potential exposure?		Highly adequate	Adequate	Inadequate		
8. Other warning signals of high potential reputation risk (e.g. does the AI have a high level of exposures to off-balance sheet vehicles (SIVs/conduits etc.) that may put pressure on it to provide implicit support in times of stress for reputation considerations?) *Please itemise the signals below :*		None or not identified	Moderate significance	Serious significance		
Overall rating		Maximum score	Maximum score	Maximum score		
Score obtained						
Overall comment on reputation risk :						

Note : All figures in the shaded areas are purposely not disclosed and subject to HKMA's periodic review.

STRATEGIC RISK (A6)

The factors listed below should be used when assessing the overall level of strategic risk. The suggested questions are not necessarily all-inclusive, but should serve as a guide to be used in determining the risk rating for each factor.

Factors for assessment	Rating	Low (L)	Moderate (M)	High (H)	Comments	Annex
1. Compatibility / suitability of strategic goals & objectives (a) Are the AI's strategic goals and decisions compatible with its corporate mission, goals, culture, values, business direction and risk tolerance? (b) Are the AI's financial objectives consistent and commensurate with its short and long term goals? (c) Are the AI's strategic decisions generally prudent or overly aggressive relative to its size and complexity?		Strong	Acceptable	Weak		
2. Responsiveness to changes in business environment Are the AI's business strategies and decisions indicative of its responsiveness to changes in the external environment (such as industry, economic, technological, competitive, regulatory, and other environmental changes)?		High	Medium	Low		
3. Adequacy of resources to carry out business strategies (a) Does the AI have adequate resources to carry out business strategies in terms of such factors as management resources and capabilities, capital and funding, staffing and operating systems, communication channels and delivery networks? (b) Does the AI have the potential or capability to enter to new markets, businesses or products?		Highly adequate	Adequate	Inadequate		
4. Implementation of business strategies (a) Does the AI have a successful track record in : - offering new products and services; - shifting of business focuses (including re-focuses); - conducting strategic investments / forming joint ventures; and - implementing merger and acquisition plans? (b) Have the AI's major business units and operations, including overseas branches, banking subsidiaries and associates, achieved satisfactory performance in line with their business targets?		Strong	Acceptable	Weak		
5. Impact of strategic decisions (a) Have there been any strategic decisions, or external pressures arising from such strategic decisions, that resulted in a significant adverse impact on the AI's financial position? (b) Have there been any strategic decisions that could not be reversed without significant cost or difficulty? (c) Is the AI's business fairly diversified (e.g. by product, geography or customer demographics) that will help reduce the overall impact of adverse market conditions?		Low	Moderate	High		
6. Other warning signals of high potential strategic risk *Please itemise the signals below :*		None or not identified	Moderate significance	Serious significance		
Overall rating		Maximum score	Maximum score	Maximum score		
Score obtained						
Overall comment on strategic risk :						

Note : All figures in the shaded areas are purposely not disclosed and subject to HKMA's periodic review.

RISK MANAGEMENT SYSTEM (B1)

Factors for assessment	Total rating	Firm-wide rating*	Individual rating								Comments	Annex
			Credit	Market	Interest rate	Liquidity	Operational	Legal	Reputation	Strategic		
1. Adequacy of risk management policies, procedures and limits												
2. Effectiveness of the risk management framework												
3. Adequacy and effectiveness of individual components in the risk management process												
(a) Risk identification												
(b) Risk measurement / assessment												
(c) Risk monitoring and controlling												
(d) Risk mitigation techniques												
(e) Fair valuation practices												
(f) Stress-testing practices												
(g) Contingency planning												
(h) Risk reporting												
4. Result / progress of implementation of the recommendations from regulators, internal and external auditors on risk management												
Overall rating												
Score obtained												

Rating	Maximum score									
S : Strong										
A : Acceptable										
W : Weak										

* A firm-wide rating reflects an AI's ability to integrate and manage all material risks from a firm-wide perspective.

Note : All figures in the shaded areas are purposely not disclosed and subject to HKMA's periodic review.

INTERNAL CONTROL SYSTEM AND ENVIRONMENT (B2)

Factors for assessment	Total rating	Firm-wide rating*	Individual rating								Comments	Annex
			Credit	Market	Interest rate	Liquidity	Operational	Legal	Reputation	Strategic		
1. Quality and effectiveness of the Board and senior management oversight												
2. Appropriateness of organisation structure and adequacy of control environment												
3. Adequacy and effectiveness of individual components within the internal control system												
(a) External audit												
(b) Internal audit												
(c) Centralised compliance												
(d) Centralised risk & quality control												
(e) Fraud detection												
4. Result / progress of implementation of the recommendations from regulators, internal and external auditors on internal controls												
Overall rating												
Score obtained												

Rating	Maximum score									
S : Strong										
A : Acceptable										
W : Weak										

* A firm-wide rating reflects an AI's ability to integrate and manage all material risks from a firm-wide perspective.

Note : All figures in the shaded areas are purposely not disclosed and subject to HKMA's periodic review.

INFRASTRUCTURE TO MEET BUSINESS NEEDS (B3)

Factors for assessment	Total rating	Firm-wide rating*	Individual rating								Comments	Annex
			Credit	Market	Interest rate	Liquidity	Operational	Legal	Reputation	Strategic		
1. Staff competence, sufficiency and stability												
2. IT capability, reliability and stability												
3. Maintenance of sufficient office space to ensure adequacy of internal controls and efficient operations												
4. Adequacy and effectiveness of management oversight and controls over "back office operations / support functions" outside Hong Kong												
5. Appropriateness and adequacy of outsourcing arrangements												
6. Result / progress of implementation of the recommendations from regulators, internal and external auditors on infrastructure												
Overall rating												
Score obtained												

Rating	Maximum score									
S : Strong										
A : Acceptable										
W : Weak										

* A firm-wide rating reflects an AI's ability to integrate and manage all material risks from a firm-wide perspective.

Note : All figures in the shaded areas are purposely not disclosed and subject to HKMA's periodic review.

OTHER SUPPORT SYSTEMS (B4)

Factors for assessment	Total rating	Firm-wide rating*	Individual rating								Comments	Annex
			Credit	Market	Interest rate	Liquidity	Operational	Legal	Reputation	Strategic		
1. Adequacy and effectiveness of accounting, management information and communication systems												
(a) Accounting system												
(b) Management information system												
(c) Compilation of prudential returns and information												
(d) Communication mechanism												
2. Adequacy and effectiveness of anti-money laundering system												
3. Result / progress of implementation of the recommendations from regulators, internal and external auditors on other support systems												
Overall rating												
Score obtained												

Rating	Maximum score									
S : Strong										
A : Acceptable										
W : Weak										

* A firm-wide rating reflects an AI's ability to integrate and manage all material risks from a firm-wide perspective.

Note : All figures in the shaded areas are purposely not disclosed and subject to HKMA's periodic review.

CAPITAL ADEQUACY ASSESSMENT PROCESS ("CAAP") (C1)

Part I - Applicable to AIs which are required to comply with the CAAP standards

Factors for assessment	Rating	Strong (S)	Acceptable (A)	Weak (W)	Comments	Annex
1. Adequacy and effectiveness of the overall CAAP						
(a) Competence of the board and senior management in discharging their responsibilities in CAAP		Highly competent	Acceptable to competent	Marginally acceptable or weak		
(b) Proportionality of the CAAP to the risk profile and level of sophistication of the AI's operations		Proportional	Marginally proportional	Not in proportion (less than required)		
(c) Usefulness and effectiveness of the CAAP in the AI's risk management and decision-making processes		Satisfactory	Acceptable	Less than satisfactory		
(d) Adequacy of controls over the integrity and functionality of the CAAP		Adequate	Acceptable	Inadequate		
(e) Ability of the CAAP to ensure the AI's compliance with the regulatory capital requirements		High	Moderate	Low		
2. Adequacy and effectiveness of individual elements in the CAAP (including stress-testing on capital adequacy)						
(a) Identifying and measuring all material risks		Satisfactory	Acceptable	Less than satisfactory		
(b) Capability of relating capital to the level of risk		Capable	Marginally capable	Incapable		
(c) Stating explicit capital adequacy goals / targets with respect to risk		Clear and reasonable	Acceptable	Unclear or with doubt		
(d) Conformity to the AI's stated capital adequacy goals / targets / objectives		All the time	Most of the time	Sometimes		
3. Supervisory actions required / taken						
(a) New supervisory actions required		Not necessary	Minor with minimal concerns	Significant with serious concerns		
(b) Results of rectification of previous supervisory actions		Not applicable	Satisfactory	Less than satisfactory		
Overall rating		Maximum score	Maximum score	Maximum score		
Score obtained						

Note : All figures in the shaded areas are purposely not disclosed and subject to HKMA's periodic review.

CAPITAL ADEQUACY ASSESSMENT PROCESS ("CAAP") (C1)

Part II - Applicable to AIs which are not required to comply with the CAAP standards (assessment based on individual AIs' business size and complexity)

Factors for assessment	Rating	Strong (S)	Acceptable (A)	Weak (W)	Comments	Annex
1. Adequacy and effectiveness of controls over compliance with capital requirements						
(a) Accuracy and completeness in categorising and reporting all components of capital base		Accurate and complete	No significant weaknesses	Unsatisfactory		
(b) Accuracy and completeness in risk-weighting and reporting all on- and off-balance sheet items		Accurate and complete	No significant weaknesses	Unsatisfactory		
(c) Documentation of categorisation and reporting procedures for regulatory capital measurement purposes		Very good	Generally satisfactory	Poor		
(d) Adequacy and effectiveness of internal monitoring systems in ensuring that actual CAR does not fall below regulatory minimum and trigger ratio		Adequate and effective	No significant weaknesses	Unsatisfactory		
2. Adequacy and effectiveness of capital planning and management						
(a) Capital planning and management processes		Formal and with adequate policy and procedures	Informal although generally satisfactory	Unsatisfactory / not commensurate with AI's operations		
(b) Consideration of all material risks and capital needs in capital planning and management		Adequate consideration	Acceptable	Inadequate / no consideration		
(c) Responsibilities in capital planning and management		Clear, appropriate and well documented	Informally defined although acceptable	Unclear		
(d) Contingent capital planning		Adequate and well documented	Informal although acceptable	Insufficient / no consideration		
3. Supervisory actions required / taken						
(a) New supervisory actions required		Not necessary	Minor with minimal concerns	Significant with serious concerns		
(b) Results of rectification of previous supervisory actions		Not applicable	Satisfactory	Less than satisfactory		
Overall rating		Maximum score	Maximum score	Maximum score		
Score obtained						

Note : All figures in the shaded areas are purposely not disclosed and subject to HKMA's periodic review.

CAPITAL STRENGTH AND CAPABILITY TO WITHSTAND RISK (C2)

SCORING RESULTS													Score obtained	Max. score
Quantitative assessment														
1. Capital adequacy	Minimum multiple (Actual CAR / Min CAR)	Trend in minimum multiple	Core capital as % of capital base											
Score obtained														
Maximum score														
2. Asset quality	Special mention (SM) loan ratio	Ratio of other SM exposures	Classified loan ratio	Ratio of other classified exp.	Trend in SM loan ratio	Trend in ratio of other SM exposures	Trend in classified loan ratio	Trend in ratio of other classified exposures	Coverage of total classified exp.					
Score obtained														
Maximum score														
3. Earnings	Return on average equity (ROAE)	Concentration of income sources	Net interest margin (NIM)	Cost-to-income ratio	Provision-to-income ratio	Dividend payout ratio	Volatility in profit after tax	Trend in profit after tax						
Score obtained														
Maximum score														
4. Business expansion	Trend in total risk-weighted assets													
Score obtained														
Maximum score														
5. Stress-testing	Impact on CAR	Impact on profitability												
Score obtained														
Maximum score														
Qualitative assessment														
													Total score obtained	

CAPITAL STRENGTH AND CAPABILITY TO WITHSTAND RISK (C2)

ASSESSMENT RESULTS

Quantitative assessment

1. Capital adequacy

Minimum multiple	Trend in minimum multiple (* No t-test is required in case of increase)			Core capital as % of capital base
DD/MM/YYYY	Average of quarterly change	Observation period	t-value calculated * :	DD/MM/YYYY
		DD/MM/YYYY - DD/MM/YYYY	t-critical value :	

2. Asset quality

Special mention (SM) loan ratio	Ratio of other SM exposure	Classified loan ratio	Ratio of other classified exp.	Coverage of total classified exposure
DD/MM/YYYY	DD/MM/YYYY	DD/MM/YYYY	DD/MM/YYYY	DD/MM/YYYY

Trend in ratios (* No t-test is required in case of decrease)				
DD/MM/YYYY - DD/MM/YYYY	SM loans	Other SM exp.	Classified loans	Other classified exp.
Average of quarterly change				
t-value calculated *				
t-critical value				

3. Earnings

Average of the annual % over the past three years	ROAE	NIM	Cost-to-income ratio	Provision-to-income ratio	Dividend payout ratio
DD/MM/YYYY - DD/MM/YYYY					

Volatility in annual profit after tax over the past five years	%
DD/MM/YYYY - DD/MM/YYYY	

Concentrated if average of the annual % > benchmark	Net interest income	Fees and comm. income	FX and other trading income	Investment and other income
Benchmark				
DD/MM/YYYY - DD/MM/YYYY				
Concentation (Yes / No)				

Trend in annual profit after tax					Continuous decline over the past 3 years	% decline if "Yes"
Year	YYYY	YYYY	YYYY	YYYY		
HK$'m						

CAPITAL STRENGTH AND CAPABILITY TO WITHSTAND RISK (C2)

ASSESSMENT RESULTS (continued)

4. Business expansion

Trend in total risk-weighted assets (Trend analysis on total risk-weighted assets is unnecessary if the trend in minimum multiple is increasing)					
DD/MM/YYYY - DD/MM/YYYY	HK$m	t-value calculated*		* No t-test is required in case of decrease	Average of quarterly increase as % of total RW assets as at the latest review position
Average of quarterly change		t-critical value			

5. Stress-testing (To be enhanced to take into account recent market developments and experience gathered from the recent financial turmoil)

Impact on CAR

Stressed CAR	Actual CAR	In case stressed CAR < actual CAR
DD/MM/YYYY	DD/MM/YYYY	Impact on CAR = Stressed CAR - Actual CAR

Impact on profitability

Estimated profit before provision for next period = (A)	Aggregate of adjusted stressed results	In case (B) is negative
Next period : DD/MM/YYYY - DD/MM/YYYY	shown in the summary below = (B)	Impact on profitability = (B) / (A) x 100%
HK$'m :	HK$'m :	

Summary of stress test results

(In HK$'m)

Stressed items #	Residential mortgage loans	Repossessed properties	Land and buildings	Taxi loans	Credit cards	Other remaining loans	Off-balance sheet exposures	HKD interest rate risk exposures	Trading fixed income instruments	
									HKD	USD
Stressed results										
Less (in case of loss) :										
- Existing specific provision										
- Existing property revaluation reserve										
Adj. stressed results										

Subject to HKMA's periodic review.

CAPITAL STRENGTH AND CAPABILITY TO WITHSTAND RISK (C2)

ASSESSMENT RESULTS (continued)

Qualitative assessment

Factors for assessment	**Rating**	Excellent (E)	Satisfactory (S)	Unsatisfactory (U)	Comments	Annex
Access to capital markets and other capital resources / strength of major shareholders' or parental support		Highly capable / very strong shareholders' or parental support	Capable / strong shareholders' or parental support	Marginal but with high cost / marginal or difficult or impossible		
Significance of pressure to obtain additional capital and the likelihood of doing so		No	Mild	Moderate to severe		
Any responsibilities / commitments the AI may have towards its subsidiaries and affiliates in terms of capital provision		No need to provide capital and no comfort letters issued	Minor but not legally / morally bound	High and some bound by legal / moral agreements		
Trend in the market price of the stock of the AI / its parent		Upward	Stable / volatile	Downward		
Sensitivity to market rumours / whether the financial position, reputation or conduct of the parent or any group company is likely to damage the AI through 'contagion' which undermines confidence		Low vulnerability	Moderate vulnerability	High vulnerability		
Financial impact of outstanding subordinated debt not included in the CAR calculation		No / minor	Moderate	Significant		
Impact of future strategic and business plans (including merger and acquisition plans) on CAR and profitability		No / minor	Moderate	Significant		
Adequacy of contingent measures against unexpected losses		Adequate	Acceptable	Inadequate / without contingent measures		
Any other factors which are relevant but not listed above (e.g. significant changes in capital position observed from AI's stress-testing results)						
Overall rating						

Note : All figures in the shaded areas are purposely not disclosed and subject ot HKMA's periodic review.

CORPORATE GOVERNANCE (D1)

Factors for assessment	Total rating	Firm-wide rating*	Individual rating								Comments	Annex
			Credit	Market	Interest rate	Liquidity	Operational	Legal	Reputation	Strategic		
1. Direct participation and involvement of the Board and senior management in												
(a) Risk management process												
(b) Risk management development and enhancement												
2. Awareness of the Board and senior management on risk management and control issues												
3. Risk management knowledge and experience of the Board and senior management												
4. Responsiveness of the Board and senior management to supervisory concerns about risk management and control weaknesses												
5. Compliance with other requirements of the corporate governance guidelines issued by the HKMA												
6. Soundness of remuneration policies and practices												
7. Result / progress of implementation of the recommendations from regulators, internal and external auditors on corporate governance												
Overall rating												
Score obtained												

Rating	Maximum score									
E : Excellent										
S : Satisfactory										
U : Unsatisfactory										

* A firm-wide rating reflects an AI's ability to integrate and manage all material risks from a firm-wide perspective.

Note : All figures in the shaded areas are purposely not disclosed and subject to HKMA's periodic review.

Annex D : Supervisory requirements on application of stress ~~and scenario~~ tests under CAAP~~SRP~~

D1 General requirements

D1.1 AIs should conduct rigorous, forward-looking stress tests that can alert them to adverse unexpected outcomes related to a broad variety of risks and to provide them with an indication of how much capital might be needed to absorb losses should severe stress events occur.

D1.~~1~~2 AIs should ~~are expected to~~ conduct stress tests ~~and scenario analyses~~ that are appropriate to their size and nature of operations regularly (say, at least quarterly~~annually~~). Depending on the nature of the major sources of risk identified and their possible impact on AIs' financial conditions, some of these stress tests ~~and scenario analyses~~ (e.g. those relating to trading activities) may need to be carried out more frequently (say, daily or weekly).

D1.3 Stress-testing should form an integral part of an AI's overall governance and risk management culture. The Board and senior management should have active involvement in setting stress-testing objectives, defining scenarios, discussing the results of stress tests, assessing potential actions and making decisions in response to concerns identified. Senior management should take an active interest in the development and operation of stress-testing. Stress-testing results should contribute to strategic decision-making, foster internal debate regarding assumptions (such as the cost, risk and speed with which new capital could be raised or that positions could be hedged or sold), and facilitate the development of risk mitigation or contingency plans across a range of stressed conditions.

D1.4 Stress tests should be used to identify existing, or potential, firm-wide risk concentrations. They should also be used to provide an independent risk perspective and complement other risk management tools, such as those that are based on complex, quantitative models using historical data and estimated statistical relationships. In particular, stress-testing

outcomes for a particular portfolio should provide insights about the validity of statistical models (e.g. VaR models) at high confidence intervals.

D1.5 AIs should feed stress-testing results into their capital and liquidity planning processes, and take these results into account when evaluating the adequacy of their capital and funding sources and examining future capital resources and liquidity requirements under adverse scenarios in order to ensure that they have the ability to raise funds at reasonable cost, when necessary.

D1.~~2~~6 AIs' regulatory capital requirements may vary as economic conditions fluctuate over time. Such requirements will also depend on which part of a business or economic cycle AIs are in. Deterioration in business or economic conditions, in particular, may result in the need for an AI to raise capital or, alternatively, to contract its business activities, at a time when market conditions are most unfavourable to raising capital. To reduce the impact of cyclical effects, an AI~~s~~ should aim at maintaining an adequate capital buffer~~add-on~~ during the~~an~~ upturn in a business ~~and~~or economic cycle~~s~~ such that it has sufficient capital available to protect itself from a severe market downturn~~s~~.

D1.~~3~~7 To assess their expected capital requirements over a business or economic cycle, AIs may wish to project their financial position taking account of their business strategy and expected growth according to a range of assumptions as to the state of the economic or business environment which they face. For example, the CAAP of an AI may include an analysis of the impact that the actions of the AI's competitors could have on its performance, in order to see what changes in its environment the AI could sustain. Projections over a one to three year period would be appropriate in most circumstances. The AI may then calculate its projected capital requirements and assess whether they could be met from expected financial resources.

D1.~~4~~8 AIs should have regard to the general standards set out in IC-5 "Stress-testing" for more guidance on the use of such techniques.

D2 Specific requirements

~~D2.1 In carrying out stress tests and scenario analyses, AIs should take reasonable steps to identify an appropriate range of realistic circumstances and events in which a risk would crystallise. In particular :~~

- ~~AIs need only carry out stress tests and scenario analyses in so far as the circumstances or events are reasonably foreseeable (i.e. their occurrence is not too remote a possibility); and~~
- ~~AIs should take into account the relative costs and benefits of carrying out the stress tests and scenario analyses in respect of their individual circumstances and events identified.~~

D2.1~~2~~ The purpose of stress tests ~~and scenario analyses~~ is to identify potential risks under stressed conditions and test the adequacy of an AI's capital in response to such conditions. Scenarios need only be identified, and their impact assessed, in so far as this facilitates that purpose. In particular, the nature, depth and detail of the analysis depend, in part, upon the AI's capital strength and the robustness of its risk prevention, detection and mitigation ~~and detection~~ measures.

D2.2 In carrying out stress tests, AIs should take reasonable steps to identify an appropriate range of risks and the circumstances and events in which those risks would crystallise. Such circumstances and events should reflect severe, but plausible, scenarios.

D2.3 Particular attention should be paid to developing stress scenarios to address, where applicable, the following types of risk:

- An AI which is engaged in originating securitization transactions should manage warehouse and pipeline risk by including such exposures in its regular stress tests, regardless of the probability of such exposures being securitized. This is because many of the risks associated with these exposures emerge when the AI is unable to

access the securitization market due to either AI-specific or market stress.

- An AI should carefully assess the risks with respect to commitments to off-balance sheet vehicles and third-party institutions related to structured credit securities and the possibility that assets will need to be taken onto the balance sheet for reputation reasons. Therefore, in its stress-testing programme, the AI should include scenarios assessing the size and soundness of such vehicles and institutions relative to its own financial, liquidity and regulatory capital positions. This analysis should cater for structural, solvency, liquidity and other risk issues, including the effects of covenants and triggers.

- An AI should also assess the effect of reputation risk in terms of other risk types, namely credit, liquidity, market and other risks, to which the AI may be exposed. This could be done by including reputation risk scenarios in regular stress tests. For example, the provision of non-contractual support (capital and/or liquidity) by an AI to the off-balance sheet vehicles sponsored by the AI due to reputation concerns may be included in the stress tests to determine the impact of such support on its credit, market and liquidity risk profiles.

D2.4~~3~~ ~~Both stress-testing and scenario analyses are prospective analysis techniques, which seek to anticipate possible losses that might occur if an identified risk crystallises.~~ In applying stress tests~~them~~, AIs are expected to decide the time horizon that such tests ~~and analyses~~ should cover. This will depend upon:

- how quickly an AI would be able to identify events or changes in circumstances that might lead to a risk crystallising resulting in a loss; and

- after the AI has identified the event or circumstances, how quickly and effectively it could act to prevent or mitigate any loss resulting from the risk crystallising and to reduce

exposure to any further adverse event or change in circumstances.

D2.5~~4~~ The time horizon over which stress tests ~~and scenario analysis~~ would need to be carried out for market risk arising from the holding of investments, for example, would depend upon:

- the extent to which there is a regular, open and transparent market for~~in~~ those assets, which would allow fluctuations in the value of the investment to be more readily and quickly identified; and

- the extent to which the market for~~in~~ those assets is liquid (and would remain liquid in the changed circumstances contemplated in the stress tests ~~or scenario analysis~~), which would allow AIs, if needed, to sell their holdings so as to prevent or reduce the exposure to future price fluctuations.

D2.6~~5~~ In identifying stress scenarios, and assessing their impact, AIs should take into account, where material, how changes in circumstances might impact upon:

- the nature, scale and mix of their future activities; and

- the behaviour of counterparties, and of the AIs themselves, including the exercise of choices (e.g. options embedded in financial instruments or contracts of insurance).

D2.7~~6~~ In determining whether there would be adequate capital in the event of each identified stress~~adverse~~ scenario, AIs should:

- only include capital that could reasonably be relied upon as being available in the circumstances of the identified scenario; and

- take account of any legal or other restriction on the use of capital.

D2.8~~7~~ AIs should conduct stress tests ~~and scenario analyses~~ which enable them to assess their exposures not only in their current position in the business or economic ~~and business~~ cycles, but

also with respect to possible changes in those cycles which might be expected over the next few years.

D2.9~~8~~ AIs may consider scenarios in which expected future profits will provide capital reserves against future risks. However, it would be appropriate to take into account profits that can be foreseen with a reasonable degree of certainty as arising before the risk against which they are being held could possibly arise. In estimating future reserves, AIs should deduct future dividend payment estimates from projections of future profits.

D2.10~~9~~ AIs may substitute for traditional stress tests ~~and scenario analyses~~ more sophisticated modelling techniques. This approach is acceptable providing that major risks are identified and the modelling is capable of estimating the impact on their financial position where the risks crystallise, or are assumed to crystallise, with a particular probability.

Annex E : Management of securitization risk and off-balance sheet exposures under CAAP

E1 Introduction

E1.1 Securitization has increasingly been used by banks as an alternative source of funding and as a mechanism to transfer risk to investors. While the risks associated with securitization are not new to banks, the financial crisis that began in 2007 highlighted some aspects of credit risk, concentration risk, market risk, liquidity risk, legal risk and reputation risk, which banks have failed to adequately address. For instance, a number of banks that were not contractually obligated to support sponsored securitization structures were unwilling to allow these structures to fail due to concerns about reputation risk and future access to capital markets. The support of these structures exposed banks to additional and unexpected credit, market and liquidity risks as they brought assets onto their balance sheets, imposing significant pressure on their financial position and capital ratios.

E1.2 In the light of the wide range of risks arising from securitization activities, which can be compounded by rapid innovation in securitization techniques and instruments, the minimum capital requirements set out in the Banking (Capital) Rules may not be sufficient to cover all risks arising from such activities. These risks usually include:

- credit, market, liquidity and reputation risks in respect of each securitization exposure;
- potential delinquencies and losses associated with the underlying exposures of securitization transactions;
- exposures from credit enhancement or liquidity facilities provided to special purpose entities; and
- exposures from guarantees provided by monoline insurers and other third parties.

E1.3 To help ensure that the Board and senior management understand the implications of securitization exposures for liquidity, earnings, risk concentration and capital, AIs should include all relevant exposures (including both contractual and non-contractual) in their risk management processes and address such exposures in their CAAP.

E1.4 AIs adopting the "originate-to-distribute" business model, or using securitization to enhance credit intermediation and profitability, are expected to have risk management processes that meet the supervisory requirements under section E2 below. Other AIs are also expected to meet the supervisory requirements, where applicable.

E1.5 The MA will take into account the compliance of an AI with the relevant supervisory requirements set out in this annex when assessing the AI's risk management processes and CAAP under the SRP.

E2 Supervisory requirements

General

E2.1 During the 2007 financial turmoil, weaknesses in banks' risk management of securitization and off-balance sheet exposures resulted in large unexpected losses. To help mitigate these risks, an AI's on- and off-balance sheet securitization activities should be included in its risk management disciplines, such as product approval, risk concentration limits, and assessments of risks associated with such activities, including credit, market, operational, reputation and liquidity risks.

Risk evaluation and management

E2.2 AIs should conduct analyses of the underlying risks when investing in structured products and must not solely rely on the external credit ratings assigned to securitization exposures by the credit rating agencies. They should be aware that external ratings are a useful starting point for credit analysis, but are no substitute for full and proper understanding of the underlying risks, especially where the ratings for certain asset classes

have a short history or have been shown to be volatile. They should also be alert to, and cautious of, situations where deterioration in the quality of an investment product may not be promptly and properly reflected in the rating. As such, they should conduct credit analysis of a securitization exposure at the time of acquisition and on an ongoing basis, and have in place the necessary quantitative tools, valuation models and stress tests of sufficient sophistication to reliably assess all relevant risks.

E2.3 To facilitate their assessment of securitization transactions, AIs should have the necessary procedures in place to capture in a timely manner updated information on such transactions, including market data, if available, and updated performance data from the securitization trustee or servicer. In addition, AIs should ensure that they fully understand the credit quality and risk characteristics of the underlying exposures in structured credit transactions, including any risk concentrations. They should also review the maturity of the exposures underlying structured credit transactions relative to the issued liabilities in order to assess potential maturity mismatches.

E2.4 AIs should track credit risk in securitization exposures at the transaction level, within each business line and across business lines, and produce reliable measures of aggregate risk. They should also track all meaningful concentrations in securitization exposures, such as name, product or sector concentrations, and feed this information to firm-wide risk aggregation systems that track, for example, credit exposure to a particular obligor.

E2.5 AIs' own risk assessments need to be based on a comprehensive understanding of the structure of securitization transactions. In performing such assessments, AIs should identify the various types of triggers, credit events and other legal provisions that may affect the performance of their on- and off-balance exposures and integrate these triggers and provisions into their credit, liquidity and balance sheet management. The impact of the events or triggers on their liquidity and capital positions should also be considered.

E2.6 As market-wide disruptions may pose difficulty to the securitization of warehoused or pipeline exposures, AIs should, as part of their risk management processes, consider and, where appropriate, mark-to-market warehoused positions as well as those in the pipeline. They should also consider scenarios which may prevent them from securitizing their assets as part of their stress-testing, and identify the potential effect of such exposures on their liquidity, earnings and capital adequacy.

E2.7 AIs should develop prudent contingency plans specifying how they would respond to funding, capital and other pressures that arise when access to securitization markets is reduced. The contingency plans should also address how they would cater for valuation challenges for potentially illiquid positions held for sale or for trading purposes. The risk measures, stress-testing results and contingency plans should be incorporated into their risk management processes and CAAP, and should result in an appropriate level of capital in excess of the minimum capital requirements.

E2.8 AIs that employ risk mitigation techniques to reduce their risks arising from off-balance sheet and securitization activities should fully understand the risks to be mitigated, the potential effects of that mitigation and whether the mitigation is fully effective. This is to help ensure that they do not understate the true level of risk in their capital assessment. In particular, they should consider whether they would provide support to the securitization structures in stressed scenarios due to the reliance on securitization as a funding tool.

Reputational risk and implicit support[19]

E2.9 Prior to the 2007 upheaval, many banks failed to recognise the reputation risk associated with their off-balance sheet vehicles. In order to preserve their reputation, some of them felt compelled to provide liquidity support, even beyond their

[19] Implicit support arises when an AI provides post-sale support to a securitization transaction in excess of its contractual obligations. Such non-contractual support exposes the AI to the risk of loss, such as loss arising from deterioration in the credit quality of the transaction's underlying exposures.

contractual obligations, to their structured investment vehicles ("SIVs") or to purchase asset-backed commercial paper ("ABCP") issued by their sponsored vehicles. By providing implicit support, these banks signalled to the market that the risks inherent in the securitized assets were still held by them and, in effect, had not been transferred. As a result, they not only assumed additional credit, market and liquidity risks, but also put pressure on their capital ratios.

E2.10 AIs should incorporate the exposures that could give rise to reputation risk into their assessment of whether the requirements for recognition of risk transference under the securitization framework have been met and the potential adverse impact of providing implicit support. Their processes for approving new products and strategic initiatives should also consider the potential provision of implicit support. Further, they should incorporate the risks arising from such exposures into their risk management processes and appropriately address them in their CAAP and liquidity contingency plans.

E2.11 AIs should have effective policies and procedures in place to identify potential sources of reputation risk in respect of securitization and off-balance sheet exposures to which they are exposed. In identifying the potential sources, they should pay particular attention to the following situations from which reputation risk may arise:

- an AI's sponsorship of securitization structures such as ABCP conduits and SIVs, as well as from the sale of credit exposures to securitization trusts. Reputation risk may arise as described in subsection E2.9 above;

- an AI's involvement in asset or fund management, particularly when financial instruments are issued by entities owned or sponsored by the AI, and are distributed to the customers of the AI. In the event that the instruments are not correctly priced or the main risks underlying the instruments are not clearly or adequately disclosed, the AI may be sued by its customers or face pressure to cover losses suffered by them; and

- an AI's sponsorship of money market mutual funds, in-house hedge funds and real estate investment trusts. In these cases, the AI may decide to support the value of shares or units held by investors on reputation grounds even though it is not contractually required to provide the support.

E2.12 AIs should take account of the sources of reputation risk mentioned above in conducting stress tests to enable the Board and senior management to have a firm understanding of the consequences and second-round effects of reputation risk arising from securitization and off-balance sheet activities (see **Annex D** for details).

Annex F : Management of risk concentrations under CAAP

F1 Introduction

F1.1 Risk concentrations can arise in an AI's assets, liabilities or off-balance sheet items, through the execution or processing of transactions (either product or service), or through a combination of exposures across these broad categories. Unmanaged risk concentrations are an important cause of major banking problems. AIs should have comprehensive policies and procedures in place to identify and assess risk concentrations, and incorporate an appropriate level of capital for risk concentrations in their CAAP.

F1.2 An AI's assessment of risk concentrations under its CAAP should not be a mechanical process. The AI should determine how to conduct this assessment, having regard to its business model and its own specific vulnerabilities.

F1.3 AIs are expected to comply with the supervisory requirements set out in section F2 below when assessing and managing their risk concentrations. As part of the SRP, the MA reviews AIs' compliance with the supervisory requirements and evaluate the appropriateness of the level of capital they have set aside for risk concentrations.

F2 Supervisory requirements

F2.1 AIs should consider concentrations based on common or correlated risk factors that reflect more subtle or more situation-specific factors than traditional concentrations, such as correlations between credit, market and liquidity risks. The typical situations in which risk concentrations can arise include:

- exposures to a single counterparty, borrower or group of connected counterparties or borrowers;
- exposures to industry or economic sectors, including exposures to both regulated and non-regulated financial institutions such as hedge funds and private equity firms;

- exposures to geographical regions;
- exposures arising from credit risk mitigation techniques, including exposure to similar collateral types or to a single or closely related credit protection provider;
- trading or market risk exposures;
- exposures to counterparties (e.g. hedge funds and hedge counterparties) through the execution or processing of transactions (either product or service);
- undue reliance on particular funding sources;
- holding of assets in the banking book or trading book, such as loans, derivatives and structured products; and
- off-balance sheet exposures, including guarantees, liquidity facilities and other commitments.

F2.2 AIs should have effective internal polices, systems and controls in place to identify, measure, monitor, control and mitigate their risk concentrations in a timely manner. In identifying and assessing risk concentrations, not only should normal market conditions be considered, but also the potential build-up of concentrations under stressed market conditions, economic downturns and periods of general market illiquidity. Where applicable, AIs should assess scenarios that consider possible concentrations arising from contractual and non-contractual contingent claims, and those that combine the potential build-up of pipeline exposures together with the loss of market liquidity and a significant decline in asset values.

F2.3 AIs should be able to identify and aggregate similar risk exposures across the organisation, including across business lines[20], asset types (e.g. loans, derivatives and structured products), risk areas (e.g. the trading book) and geographical regions through their risk management processes and MIS.

[20] Examples of business lines include subprime exposure in lending portfolios, counterparty exposures, conduit exposures and structured investment vehicles, contractual and non-contractual exposures, trading activities, and underwriting pipelines.

AIs should analyse and understand the firm-wide risk concentrations identified. In the case of a local banking group which adopts a CAAP covering the positions of their subsidiary AIs, risk concentrations should be analysed on both solo and consolidated bases, as an unmanaged concentration at a subsidiary AI may appear immaterial at the consolidated level, but could threaten the viability of the subsidiary operation.

F2.4 While risk concentrations often arise due to direct exposures to borrowers and obligors, an AI may also incur a concentration to a particular asset type indirectly through investments backed by such assets (e.g. collateralised debt obligations) as well as exposure to protection providers which guarantee the performance of the specific asset type (e.g. monoline insurers). AIs should have adequate, systematic procedures in place for identifying high correlations between the creditworthiness of a protection provider and the obligors of the underlying exposures due to their performance being dependent on common factors beyond systematic risk (i.e. "wrong way risk").

F2.5 AIs should employ a number of techniques, as appropriate, to measure risk concentrations. These techniques include shocks to various risk factors, use of business level and firm-wide scenarios, and use of integrated stress-testing and economic capital models. Identified concentrations should be measured in a number of ways, including for example consideration of gross versus net exposures, use of notional amounts, and analysis of exposures with and without counterparty hedges.

F2.6 When conducting regular stress tests, AIs should incorporate all major risk concentrations and identify and respond to potential changes in market conditions that could adversely impact their performance and capital adequacy.

F2.7 AIs should establish internal position limits for concentrations to which they may be exposed. Similar exposures should be aggregated across business platforms (including the banking and trading books) to determine whether there is a concentration or a breach of an internal position limit. Procedures should also be in place to identify any limit breaches and promptly report such breaches to senior

management, as well as to ensure that appropriate follow-up actions are taken.

F2.8 AIs should have credit risk mitigation strategies in place that have senior management approval. This may include altering business strategies, reducing limits or increasing capital buffers in line with the desired risk profile. While implementing risk mitigation strategies, AIs should be aware of possible concentrations that might arise as a result of employing risk mitigation techniques.

F2.9 AIs should have an appropriate infrastructure and MIS that allow for the aggregation of exposures and risk measures across business lines and support customised identification of concentrations and emerging risks. Procedures should also be in place to communicate risk concentrations to the Board and senior management in a manner that clearly indicates where in the organisation each segment of a risk concentration resides.