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**GUIDANCE ON  
SUPERVISORY REVIEW AND EVALUATION PROCESS (SREP)  
(ALSO KNOWN AS PILLAR 2)**

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## I. INTRODUCTION

1. A bank<sup>1</sup> always, including on a forward-looking basis, must have adequate capital to support its operations and cater to and cope with its risk profile.
2. These guidelines focus on capital and, more importantly, capital management, especially in relation to risk management. This guidance is intended to assist banks to better manage (identify; measure and evaluate; avoid, mitigate and control; monitor and report) risks in the future and in appropriately capturing risks in their internal assessments of capital adequacy. The capital and risk management principles in this guidance reflect also lessons learned from the recent international financial turmoil and reinforce how banks must manage their capital and risks, and mitigate the risks identified through the Pillar 2 process. A thorough and comprehensive internal capital adequacy assessment process (ICAAP) is a vital component of a strong risk management program. The ICAAP must produce a level of capital adequate to support the nature and level of the bank's operations and its risk profile. It is the role of the supervisor independently to evaluate and effectively challenge the sufficiency of the bank's internal assessment and to intervene where appropriate.
3. A bank is built on the confidence of its stakeholders, and sound risk and capital management are necessary to support market participants' and the Authority's confidence in banks' assessments of their risk profiles and internal capital adequacy assessments. These processes take on added significance considering the identification, measurement and aggregation challenges arising from increasingly complex on- and off-balance sheet exposures.

## II. PRUDENTIAL OBJECTIVE

4. The apex (public policy financial) prudential objective is (both macro-prudential and micro-prudential) financial stability.
5. Sound corporate governance, capital management, risk management, compliance, internal controls, internal audit, external audit, stress testing and market discipline (through transparency and disclosure play indispensable roles in the effective pursuit of this objective).

## III. RATIONALE FOR IMPROVED CAPITAL AND RISK MANAGEMENT

6. The financial market crisis that began in mid-2007 resulted in substantial financial losses. Several notable weaknesses in banks' capital and risk management were revealed during the financial turmoil that began in 2007.
7. It is evident that many financial institutions did not fully understand the risks associated with the businesses and structured credit products in which they were involved. Moreover, it is now apparent these banks did not adhere to the fundamental tenets of sound financial judgment and prudent risk management.
8. While financial institutions have faced difficulties over the years for a multitude of reasons, the major causes of serious banking problems continue to include lax credit standards for borrowers and counterparties, poor portfolio risk management, and a lack of attention to changes in economic or other circumstances that can lead to a deterioration in the credit standing of a bank's counterparties. This experience is common in both G10 and non-G10 countries.

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<sup>1</sup> Bank in this Annex 1 refers to all banks licensed under the Banking Order, 2006 and all Islamic banks licensed under the Islamic Banking Order, 2008.

9. The financial market crisis has underscored the critical importance of effective credit risk management to the long-term success of a banking organisation and as a key component to financial stability. It has provided a stark reminder of the need for banks to effectively identify, measure, monitor and control credit risk, as well as to understand how credit risk interacts with other types of risk (including market, liquidity and reputational risk). The essential elements of a comprehensive credit risk management program include (i) developing and executing on sound credit policies; (ii) establishing an appropriate credit risk environment; (iii) operating under a sound credit granting process; (iv) maintaining an appropriate credit administration, measurement and monitoring process; and (vi) ensuring adequate controls over credit risk.<sup>2</sup>

10. The crisis has also emphasised the importance of effective capital management, including capital planning and longer-term capital maintenance. A bank's ability to withstand uncertain market conditions is related to its capital position. Accordingly, a bank's capital management must be dynamic and responsive to the bank's risk profile and changes therein, irrespective whether caused by internal or external factors, such as a bank's strategy and volatility in market conditions over time. An effective capital planning process requires a bank to assess both the risks to which it is exposed and the risk management processes in place to avoid, manage and mitigate those risks; evaluate its capital adequacy relative to its risks; and consider the potential impact on earnings and capital from economic downturns. A bank's capital management must incorporate rigorous, forward-looking stress testing, as discussed below in the section on stress testing (**See section VIII(C) below**).

11. Rapid growth in any business activity can present banks with significant risk management challenges. This was the case with the expanded use of the "originate-to-distribute" business model, off-balance sheet vehicles, liquidity facilities and credit derivatives. The originate-to-distribute model and securitisation can enhance credit intermediation and bank profitability, as well as more widely diversify risk. Managing the associated risks, however, poses significant challenges. Indeed, these activities create exposures within business lines, across the bank and across risk factors that can be difficult to identify, measure, manage, mitigate and control. This is especially true in an environment of declining market liquidity, asset prices and risk appetite. The inability to properly identify and measure such risks may lead to unintended risk exposures and concentrations, which in turn can lead to concurrent losses arising in several businesses and risk dimensions due to a common set of factors.

12. Strong demand for structured products created incentives for banks using the originate-to-distribute model to originate loans, such as subprime mortgages, to weaken unsound and unsafe underwriting standards. Many investors relied solely on the ratings of the credit rating agencies (CRAs) when determining whether to invest in structured credit products. Many investors conducted little or no independent due diligence on the structured products they purchased. Furthermore, many banks had insufficient risk management processes in place to address the risks associated with exposures held on their balance sheet, as well as those associated with off-balance sheet entities, such as asset-backed commercial paper (ABCP) conduits and structured investment vehicles (SIVs).

13. Improvements in risk management must evolve to keep pace with rapid financial innovation. This is particularly relevant for participants in evolving and rapidly growing businesses such as those that employ an originate-to-distribute model. Innovation has increased the complexity and potential illiquidity of structured credit products. This, in turn, can make such products more difficult to value and hedge, and may lead to inadvertent increases in overall risk. Further, the increased growth of complex investor-specific products may result in thin markets that are illiquid, which can expose a bank to large losses in times of stress if the associated risks are not well understood and managed in a timely and effective manner.

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<sup>2</sup> These elements are further elaborated upon in the Basel Committee's *Principles for the Management of Credit Risk* (September 2000).

## IV. ICAAP AND SREP

### A. Capital management

14. The original responsibility for the safety and soundness of a bank lies with the bank itself, and more specifically with its directors. The financial safety and soundness of a bank depends on a range of factors, including its solvency and sustainability, recognising also that no amount of capital can protect a bank from directors and senior management who are not fit or proper. A bank's solvency and sustainability, including its accounting solvency and sustainability, its regulatory solvency and sustainability, and its economic solvency and sustainability, are at the core of a bank's safety and soundness. To this end, it is necessary to consider the issue of capital management from the perspectives of accounting capital, regulatory capital and economic capital.

15. A bank's capital management, for the purposes hereof referred to as the bank's internal capital adequacy assessment process (ICAAP) is an internal responsibility that requires an all-encompassing approach. The use test requires that a bank's ICAAP must drive related decision-making within the bank – the ICAAP must not be merely a tick-box exercise to satisfy the Authority.

16. A bank must review comprehensively its capital management and capital planning on an annual basis. Annually a bank must produce a capital adequacy statement which demonstrates that the board has a good understanding of the capital adequacy of the entity, its main drivers and vulnerabilities, its main inputs and outputs, the parameters underlying the process, and the coherence and alignment between capital management on the one hand and on the other hand strategic planning, corporate governance, risk management, internal controls, stress testing and management information. A bank must have the capacity to manage its capital on a forward-looking basis, with a time-horizon of at least two years and ideally as far out as five years, given, among others, the duration of and implications flowing from economic cycles. A bank's capital planning must be congruent with its strategic positioning and planning, and be consistent with the operating environment, risk appetite, risk profile and risk capacity of the bank.

17. A bank must ensure that it takes a holistic, bottom up and top down, view of capital management. A bank must ensure the resilience of its solvency and sustainability through a dynamic and integrated approach that takes account of all its risk exposures and a range of scenarios, stresses and crises, and incorporates conservative buffers. To this end, a bank must apply stress testing as part of its capital planning process.

18. A bank's board of directors must: -

- i) ensure that the bank has board-approved policies dealing with key dimensions of the bank which are aligned with the business strategy and environment of the bank, including: -
  - (a) a capital management policy, which includes minimum capital levels and desired capital targets, both overall and by capital element, and buffers. The board must be able to demonstrate that the internal capital targets are well-founded and consistent with its overall risk profile and current operating environment.
  - (b) risk management policy which must include a risk appetite statement.
- ii) maintain oversight of risk management and capital management, and ensure that pre-emptive action is taken to avoid breaching its internal minimum levels or regulatory prescriptions.

19. A bank's senior management must: -
- i) develop policies, including a risk management policy and a capital management policy, dealing with key dimensions of the bank and ensure alignment with the business strategy and environment of the bank;
  - ii) evaluate and determine the bank's current and projected capital requirements in relation to its risk appetite, risk profile and strategic objectives;
  - iii) compile a strategic plan which outlines the bank's capital needs, anticipated capital expenditures, external capital sources and desired capital levels;
  - iv) establish frameworks for identifying, assessing and measuring, avoiding, mitigating and controlling, monitoring and reporting on risks facing the bank;
  - v) develop systems for relating these risks to the capital level of the bank;
  - vi) ensure that the bank's risk management framework includes detailed policies that set specific firm-wide prudential limits on the banks' activities, which are consistent with its risk appetite and capacity.
  - vii) monitor a bank's compliance with risk management policies, including relating risks to capital levels;
  - viii) institute a strong internal control culture throughout the bank, including the adoption of written policies and procedures;
  - ix) evaluate the reasonableness and sensitivity of key assumptions used in capital management, including in assessment and measurement of risks and determining the risk profile of the bank;
  - x) communicate the internal controls and written policies and procedures throughout the bank;
  - xi) evaluate the level and trend of material risks and their effect on capital levels;
  - xii) conduct ongoing stress testing to identify potential losses and liquidity needs under adverse circumstances;
  - xiii) set adequate minimum internal standards for allowances or liabilities for losses, capital and contingency funding;
  - xiv) determine whether the bank holds sufficient capital against the risks it faces;
  - xv) clearly communicate the nature and extent of risks in an easily understandable, but reasonable, manner in reports to senior management and the board of directors, as well as in published financial reports; and
  - xvi) subject the ICAAP to annual independent review for comprehensiveness, reasonableness, resilience and integrity.

20. When assessing whether a bank is appropriately capitalised, bank management must ensure that it properly identifies, measures and assesses the risks to which the bank is exposed. A financial institution's ICAAP must be conducted on a consolidated basis and, when deemed necessary by the Authority, at the legal entity level for each bank in the group. In addition, the ICAAP must incorporate stress testing to complement and help validate other quantitative and qualitative approaches so that bank management may have a more complete understanding of the bank's risks and the interaction of those risks under stressed conditions. A bank also must perform a careful analysis of its capital instruments and their potential performance during times of stress, including their ability to absorb losses and support ongoing business operations. A bank's ICAAP must address both short- and long-term needs and consider the extent of prudence to be applied to building excess capital over benign periods of the credit cycle, to withstand severe and prolonged market downturns and crises. Differences between the capital adequacy assessment made in compliance with Basel II Pillar 2, under, respectively, a bank's ICAAP and the SREP under Pillar 2, must trigger a dialogue between the parties that is proportionate to the nature and extent of such differences.

21. Pillar 1 capital requirements deal with (some elements of) a limited number of risks (namely credit risk; market risk; operational risk) and represent minimum requirements. An appropriate level of capital under Pillar 2 must exceed the minimum Pillar 1 requirement to ensure that all risks, including risks not (fully) dealt with under Pillar 1, of a bank – both on- and off-balance sheet – are adequately covered, particularly those related to complex capital market activities. In addition, a bank must operate at a comfortable level above the higher of the minimum capital demanded by regulation or economic reality. All this will help ensure that a bank maintains sufficient capital to enable it to operate effectively throughout a severe and prolonged period of financial market stress or an adverse credit cycle, in part, by drawing down on the capital buffer built-up during good times. While all banks must comply with the minimum capital requirements during and after such stress events, it is imperative that systemically important banks have the shock absorption capability to adequately protect against severe stress events.

22. Among others, the following three main areas in particular are suited to treatment under Pillar 2: -

- i) risks considered under Pillar 1 that are not fully captured by the Pillar 1 process (e.g. credit concentration risk);
- ii) those factors not taken into account by the Pillar 1 process (e.g. interest rate risk in the banking book, business and strategic risk); and
- iii) factors external to the bank (e.g. business cycle effects).

23. A relationship exists between the amount of capital to be held by a bank against its risks and the strength and effectiveness of the bank's risk management and internal control processes. However, increased capital must not be viewed as the only option for addressing increased risks confronting the bank. Other means for addressing risk, such as strengthening risk management, applying internal limits, strengthening the level of provisions and reserves, and improving internal controls, must also be considered. Furthermore, capital must not be regarded as a substitute for addressing fundamentally inadequate control or risk management processes.

24. The detail and sophistication of a bank's risk and capital management must be commensurate with the size and complexity of its business and the nature and extent of risk that the bank accepts. This guidance, therefore, must be applied to banks on a proportionate basis.



25. Branches of foreign banks licensed to conduct banking business are required to demonstrate compliance with these guidelines.

#### **B. Supervision, including Supervisory Review and Evaluation Process (SREP)**

26. In pursuit of the regulatory objective of (macroprudential and microprudential) financial stability, the Authority develops legislative, regulatory and supervisory frameworks and performs day-to-day supervision. More specifically, in pursuit of the microprudential regulatory objective of safe and sound banks, banks are required to apply sound risk and capital management and the Authority performs a review and evaluation, the SREP, thereof.

27. The SREP is intended not only to ensure that banks have adequate capital to support all the risks in their business, but also to encourage banks to develop and use better risk management techniques in monitoring and managing their risks.

28. The SREP recognises the board of director's overall responsibility, in conjunction with a bank's senior management, for the safety and soundness of a bank, including the responsibility for risk and capital management. Bank management must develop an ICAAP and set capital targets that are commensurate with the bank's risk profile and control environment. Bank management has a continuing responsibility for ensuring that the bank has adequate capital to support its risks beyond the regulatory core minimum requirements.

29. The Authority evaluates how well a bank assesses its capital needs relative to its risks and will intervene, where appropriate. This interaction is intended to foster an active dialogue between banks and the Authority, such that when deficiencies are identified, prompt and decisive action can be taken to reduce risk or restore capital. The Authority will focus more intensely on those banks with risk profiles or operational outcomes that warrant more attention.

30. The Authority will determine whether a bank has in place a sound bank-wide risk management framework that enables it to define its risk appetite and recognise all material risks, including the risks posed by concentrations, securitisation, off-balance sheet exposures, valuation practices and other risk exposures.

## V. FOUR KEY PRINCIPLES OF PILLAR 2

### PRINCIPLE 1

**A bank must have a process for assessing its overall capital adequacy in relation to its risk profile and a strategy for maintaining their capital levels.**

31. The board of directors, in conjunction with senior management, bears the original responsibility for ensuring that a bank applies sound risk and capital management. A bank must determine the (actual/projected/intended) capital necessary to support various permutations of risk exposures constituting the bank's risk profile and, inversely, the various permutations or risk exposures constituting the bank's risk profile which can be supported by the bank's actual, projected and/or intended capital. This capacity for assessing a bank's capital adequacy relative to its risk profile, and inversely is a prerequisite for sound capital management and an effective assessment of the adequacy of a bank's capital position. Recent market events underscore the importance of senior management taking an integrated, bank-wide perspective of a bank's risk exposure, to support its ability to identify and react to emerging and growing risks in a timely and effective manner. There is a need to enhance bank-wide oversight, risk management and controls around banks' growing capital markets activities, including securitization, off-balance sheet exposures, structured credit and complex trading activities.

32. A bank must be able to demonstrate that chosen internal capital targets are well founded and that these targets are consistent with its (actual/projected/intended) risk profile and operating environment. In assessing capital adequacy, bank management must be mindful of the particular stage of the business cycle in which the bank is operating. Rigorous, forward-looking stress testing that identifies possible events or changes in market conditions that could adversely impact the bank and that identifies potential weaknesses must be performed. The board of directors and bank management bears primary responsibility for ensuring that the bank has adequate capital to support its risks.

33. Sound risk and capital management must have the following key features: -

- i) Active board and senior management oversight;
- ii) Appropriate policies, procedures and limits;
- iii) Comprehensive and timely identification, measurement, mitigation, controlling, monitoring and reporting of risks;
- iv) Appropriate management information systems (MIS) at the business and bank-wide level which enables the monitoring of the actual position and performance against policies, including the risk appetite, risk profile, risk limits, and (minimum) capital amounts and buffers and ratios;
- v) Effective three levels of defence, including comprehensive internal controls and regular independent review thereof;
- vi) Linking output of the risk management system to the capital management system, and *vice versa*;
- vii) Use of the output of the risk and capital management systems and processes as input into decision-making.

## **A. Active board and senior management oversight**

34. A board of directors has ultimate management control of a bank and are responsible for its safety and soundness, which responsibility it delegates to senior management, but for which it remains accountable, thus necessitating the board's oversight role.

35. A bank's board of directors and senior management are responsible for developing a risk management framework and encapsulating it in a board-approved risk management policy, which includes the bank's risk appetite statement and prudential limits on the bank's activities, which are consistent with the bank's risk-taking capacity.

36. To determine a bank's overall risk profile, the board and senior management must first have an understanding of risk exposures on a bank-wide basis. To achieve this understanding, the appropriate members of senior management must determine the perspectives of the key business and control functions. To develop an integrated bank-wide perspective on risk, senior management must overcome organisational silos between business lines and share information on market developments, risks and risk mitigation techniques.

37. As the banking industry has moved increasingly towards market-based intermediation, there is a greater probability that many areas of a bank may be exposed to a common set of products, risk factors or counterparties. Senior management must establish a risk management process that is not limited to credit, market, liquidity and operational risks, but incorporates all material risks. This includes reputational, legal and strategic risks, as well as risks that do not appear to be significant in isolation, but when combined with other risks could lead to material losses.

38. Only by possessing sufficient relevant knowledge, skills and experience regarding all major business lines will a bank's board of directors and senior management have the capacity to ensure that appropriate policies, controls and risk monitoring systems are effective. They must have the necessary expertise to understand the capital markets activities in which the bank is involved – such as securitisation and off-balance sheet activities – and the associated risks. The board and senior management must remain informed on an on-going basis about these risks as financial markets, risk management practices and the bank's activities evolve. In addition, the board and senior management must ensure that accountability and lines of authority are clearly delineated. With respect to new or complex products and activities, senior management must understand the underlying assumptions regarding business models, valuation and risk management practices. In addition, senior management must evaluate the potential risk exposure if those assumptions fail.

39. Bank management is responsible for understanding the nature and level of risk being taken by the bank and how this risk relates to adequate capital levels. It is also responsible for ensuring that the formality and sophistication of the risk management processes are appropriate in light of the risk profile and business plan.

40. The assessment and determination of a bank's current, projected and intended future capital requirements in relation to its strategic objectives are a vital element of the strategic planning process. The strategic plan must clearly outline the bank's capital needs, anticipated capital expenditures, desirable capital level, external capital sources and cost of capital. Senior management and the board must view sound risk and capital management as indispensable to responsible management in pursuit of strategic objectives.

41. The bank's board of directors has responsibility for setting the bank's tolerance for risks. It must also ensure that management establishes a framework for assessing the various risks, develops a system to relate risk to the bank's capital level, and establishes a method for monitoring compliance with internal policies. It is likewise important that the board of directors adopts and supports strong internal controls and written policies and procedures and ensures that management effectively communicates and enforces these throughout the organisation.

42. Before embarking on new activities or introducing new products to the institution, the board and senior management must identify and review the changes in bank-wide risks arising from these potential new products or activities and ensure that the infrastructure and internal controls necessary to manage the related risks are in place. In this review, a bank must also consider the possible difficulty in valuing the new products and how they might perform in a stressed economic environment.

43. A bank's risk function and its chief risk officer (CRO) or equivalent position must be independent of the individual business lines and report directly to the chief executive officer (CEO) and the institution's board of directors or a designated sub-committee (such as a risk committee). In addition, the risk function must highlight to senior management and the board risk management concerns, such as risk concentrations and violations of risk appetite limits.

#### **B. Appropriate policies, procedures and limits**

44. Bank-wide risk management programs must include detailed policies that set appropriate prudential limits on the nature and extent of risk exposures while also taking account of the bank's role in the financial system. Limits must be defined in relation to the bank's capital, earnings, liquidity, assets, and/or liabilities or, where reliable measurement is available, its overall risk level.

45. A bank's policies, procedures and limits must: -

- i) Provide for adequate and timely identification, measurement, monitoring, control and mitigation of the risks posed by its lending, investing, trading, securitisation, off- balance sheet, fiduciary and other significant activities at the business line and bank- wide levels;
- ii) Ensure that the economic substance of a bank's risk exposures, including reputational risk and valuation uncertainty, are fully recognised and incorporated into the bank's risk management processes;
- iii) Be consistent with the bank's stated goals and objectives, as well as its overall financial strength;
- iv) Clearly delineate accountability and lines of authority across the bank's various business activities, and ensure there is a clear separation between business lines and the risk function;
- v) Escalate and address breaches of internal position limits;
- vi) Provide for the review of new businesses and products by bringing together all relevant risk management, control and business lines to ensure that the bank can manage and control the activity prior to it being initiated;
- vii) Include a schedule and process for reviewing the policies, procedures and limits and for updating them as appropriate.

### C. Identifying, measuring, monitoring and reporting of risk

46. A bank's MIS must provide the board and senior management in a clear and concise manner with timely and relevant information concerning their institutions' risk profile. This information must include all risk exposures, including those that are off-balance sheet. Management must understand the assumptions behind and limitations inherent in specific risk measures.

47. The key elements necessary for the aggregation of risks are an appropriate infrastructure and MIS that (i) allow for the aggregation of exposures and risk measures across business lines and (ii) support customised identification of concentrations and emerging risks. MIS developed to achieve this objective must support the ability to evaluate the impact of various types of economic and financial shocks that affect the whole of the financial institution. Further, a bank's systems must be flexible enough to incorporate hedging and other risk mitigation actions to be carried out on a bank-wide basis while taking into account the various related basis risks.

48. To enable proactive management of risk, the board and senior management need to ensure that MIS is capable of providing regular, accurate and timely information on the bank's aggregate risk profile, as well as the main assumptions used for risk aggregation. MIS must be adaptable and responsive to changes in the bank's underlying risk assumptions and must incorporate multiple perspectives of risk exposure to account for uncertainties in risk measurement. In addition, it must be sufficiently flexible so that the institution can generate forward-looking bank-wide scenario analyses that capture management's interpretation of evolving market conditions and stressed conditions (**See section VIII (C) below on stress testing**). Third-party inputs or other tools used within MIS (e.g. credit ratings, risk measures, models) must be subjected to initial and ongoing validation.

49. A bank's MIS must be capable of capturing limit breaches and there must be procedures in place to promptly report such breaches to senior management, as well as to ensure that appropriate follow-up actions are taken. For instance, similar exposures must 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.

50. All material risks faced by the bank must be addressed in the capital assessment process. While not all risks can be measured precisely, a process must be developed to estimate risks. Therefore, the following risk exposures, which by no means constitute a comprehensive list of all risks, must be considered.

51. **Credit risk:** Banks must have methodologies that enable them to assess the credit risk involved in exposures to individual borrowers or counterparties as well as at the portfolio level. For more sophisticated banks, the credit review assessment of capital adequacy, at a minimum, must cover four areas: risk rating systems, portfolio analysis/aggregation, securitisation/complex credit derivatives, and large exposures and risk concentrations.

52. Internal risk rating is an important tool in monitoring credit risk. Internal risk ratings must be adequate to support the identification and measurement of risk from all credit exposures, and must be integrated into an institution's overall analysis of credit risk and capital adequacy. The ratings system must provide detailed ratings for all assets, not only for criticised or problem assets. Loan loss allowances must be included in the credit risk assessment for capital adequacy.

53. The analysis of credit risk must adequately identify any weaknesses at the portfolio level, including any concentrations of risk. It must also adequately take into consideration the risks involved in managing credit concentrations and other portfolio issues through such mechanisms as securitisation programs and complex credit derivatives. Further, the analysis of counterparty credit

risk must include consideration of public evaluation of the supervisor's compliance with the Core Principles for Effective Banking Supervision.

54. **Operational risk:** Similar rigor must be applied to the management of operational risk, as is done for the management of other significant banking risks. The failure to properly manage operational risk can result in a misstatement of an institution's risk/return profile and expose the institution to significant losses.

55. A bank must develop a framework for managing operational risk and evaluate the adequacy of capital given this framework. The framework must cover the bank's appetite and tolerance for operational risk, as specified through the policies for managing this risk, including the extent and way operational risk is transferred outside the bank. It must also include policies outlining the bank's approach to identifying, assessing, monitoring and controlling/mitigating the risk.

56. **Market risk:** Banks must have methodologies that enable them to assess and actively manage all material market risks, wherever they arise, at position, desk, business line and bank-wide level. For more sophisticated banks, their assessment of internal capital adequacy for market risk, at a minimum, must be based on both VaR modelling and stress testing, including an assessment of concentration risk and the assessment of illiquidity under stressful market scenarios, although all banks' assessments must include stress testing appropriate to their trading activity.

57. VaR is one of the tools with which to monitor aggregate market risk exposures and provides a common metric for comparing the risk being run by different desks and business lines. A bank's VaR model must be adequate to identify and measure risks arising from all its trading activities and must be integrated into the bank's overall internal capital assessment as well as subject to rigorous on-going validation. A VaR model estimates must be sensitive to changes in the trading book risk profile.

58. Banks must supplement their VaR model with stress tests (factor shocks or integrated scenarios whether historic or hypothetical) and other appropriate risk management techniques. In the bank's ICAAP it must demonstrate that it has enough capital to meet not only the minimum capital requirements but also to withstand a range of severe but plausible market shocks. In particular, it must factor in, where appropriate: -

- i) Temporary illiquidity and gapping of prices;
- ii) Concentrated positions (in relation to market turnover or products);
- iii) One-way markets;
- iv) Products without deep secondary markets;
- v) Non-linear products/deep out-of-the money positions;
- vi) External events and jumps-to-defaults;
- vii) Significant shifts in correlations, in and between markets;
- viii) Other risks that may not be captured appropriately in VaR (e.g. recovery rate uncertainty, implied correlations, or skew risk).

59. **Concentration risk** must be pro-actively managed and assessed by a bank and concentrated positions must be routinely reported to senior management.

60. Banks must design their risk management systems, including the VaR methodology and stress tests, to properly measure the material risks in instruments they trade as well as the trading strategies they pursue. As their instruments and trading strategies change, the VaR methodologies and stress tests must also evolve to accommodate the changes.

61. Banks must demonstrate how they combine their risk measurement approaches to arrive at the overall internal capital for market risk.

62. **Interest rate risk in the banking book:** The measurement process must include all material interest rate positions of the bank and consider all relevant repricing and maturity data. Such information will generally include current balance and contractual rate of interest associated with the instruments and portfolios, principal payments, interest reset dates, maturities, the rate index used for repricing, and contractual interest rate ceilings or floors for adjustable-rate items. The system must also have well-documented assumptions and techniques.

63. Regardless of the type and level of complexity of the measurement system used, bank management must ensure the adequacy and completeness of the system. Because the quality and reliability of the measurement system is largely dependent on the quality of the data and various assumptions used in the model, management must give particular attention to these items.

64. **Liquidity risk:** Liquidity is crucial to the ongoing viability of any banking organisation. Banks' capital positions can influence their ability to obtain liquidity, especially in a crisis. Each bank must have adequate systems for measuring, monitoring and controlling liquidity risk. Banks must evaluate the adequacy of capital given their own liquidity profile and the liquidity of the markets in which they operate.

65. **Other risks:** Notwithstanding that 'other' risks, such as reputational and strategic risk, are not easily measurable, the Authority expects industry to further develop techniques for managing all aspects of these risks.

#### **D. Monitoring and reporting**

66. A bank must establish an adequate system for monitoring and reporting risk exposures and assessing how the bank's changing risk profile affects the need for capital. The bank's senior management and board of directors must, on a regular basis, receive reports on the bank's risk profile and capital needs. These reports must enable one to: -

- i) Evaluate the level and trend of material risks and their effect on capital levels;
- ii) Evaluate the sensitivity and reasonableness of key assumptions used in the capital assessment measurement system (e.g. NPL levels, or movements in stock markets or commodity prices);
- iii) Determine whether the bank holds sufficient capital against the various risks and complies with established capital adequacy goals; and
- iv) Assess its future capital requirements based on the bank's reported risk profile and make necessary adjustments to the bank's strategic plan accordingly.

## **E. Internal control review**

67. The bank's internal control structure is essential to risk and capital management. Effective control of risk and capital management includes an independent review and, where appropriate, the involvement of internal or external audits. The bank's board of directors has a responsibility to ensure that management establishes a system for identifying, measuring and assessing the various risks, develops a system to relate risk to the bank's capital level, and establishes a method for monitoring compliance with internal policies. The board must regularly verify whether its system of internal controls is adequate to ensure well-ordered and prudent conduct of business.

68. Risk management processes must be frequently monitored and tested by independent control areas and internal, as well as external, auditors. The aim is to ensure that the information on which decisions are based is accurate so that processes fully reflect management policies and that regular reporting, including the reporting of limit breaches and other exception-based reporting, is undertaken effectively. The risk management function of banks must be independent of the business lines, to ensure an adequate separation of duties and to avoid conflicts of interest.

69. The bank must conduct periodic reviews of its risk management process to ensure its integrity, accuracy, and reasonableness. Areas that must be reviewed include: -

- i) Appropriateness of the bank's capital management given the nature, scope and complexity of its activities;
- ii) Identification of large exposures and risk concentrations;
- iii) Accuracy and completeness of data inputs into the bank's assessment process;
- iv) Reasonableness and validity of scenarios used in the assessment process; and
- v) Stress testing and analysis of assumptions and inputs.

## **F. Linking output of risk management system to capital management**

70. Fundamental elements of sound capital management include: -

- i) A process that determines the bank's minimum and sound capital adequacy level and ratio objectives against the backdrop of the bank's risk appetite;
- ii) A process that generates and monitors capital levels and ratios against the bank's risk profile; and
- iii) Follow-up actions, including enforcement and review.

## **G. Use of risk and capital management output as input into decision-making**

71. The bank must describe how and to what extent risk and capital management is embedded within the bank and how it is taken into account in and impacts the bank's decision-making. Any dissonance between risk and capital management and operations must be highlighted and explained.



## **PRINCIPLE 2**

**The Authority will review and evaluate banks' internal capital adequacy assessments and strategies, as well as their ability to monitor and ensure their compliance with regulatory capital ratios. The Authority will take appropriate supervisory action if it is not satisfied with the result of this process.**

72. The Authority will regularly review the process by which a bank assesses its (actual, evolving and projected) risk profile, capital adequacy, capital levels, and quality of capital held. The Authority will also evaluate the degree to which a bank has in place a sound internal process to manage its capital and assess its capital adequacy. The emphasis of the review will be on the quality of the bank's risk and capital management and will not result in the Authority functioning as bank management. The periodic review can involve some combination of: -

- i) On-site examinations or inspections;
- ii) Off-site review;
- iii) Discussions with bank management;
- iv) Review of work done by external auditors (provided it is adequately focused on the necessary risk and capital issues); and
- v) Periodic reporting.

73. The substantial impact that errors in the methodology or assumptions can have on resulting capital requirements requires a detailed review by the Authority of each bank's internal analysis.

### **A. Review of adequacy of risk assessment**

74. The Authority will assess the degree to which internal targets and processes incorporate the full range of material risks faced by the bank. The authority will also review the adequacy of risk measures used in assessing internal capital adequacy and the extent to which these risk measures are also used operationally in setting limits, evaluating business line performance, and evaluating and controlling risks more generally. The Authority will consider the results of sensitivity analyses and stress tests conducted by the institution and how these results relate to capital plans.

### **B. Assessment of capital adequacy**

75. The Authority will review the bank's processes to determine that: -

- i) Target levels of capital chosen are comprehensive and relevant to the current operating environment;
- ii) The capital levels are properly monitored and reviewed by senior management; and
- iii) The composition of capital is appropriate for the nature and scale of the bank's business.

76. The Authority will also consider the extent to which the bank has provided for unexpected events in setting its capital levels. This analysis will cover a wide range of external conditions and scenarios, and the sophistication of techniques and stress tests used must be commensurate with the bank's activities and risk exposures.

### **C. Assessment of the control environment**

77. The Authority will consider the quality of the bank's management information reporting and systems, the manner in which business risks and activities are aggregated, and management's record in responding to emerging or changing risks.

78. In all instances, the capital level at an individual bank will be determined according to the bank's risk profile and adequacy of its risk management process and internal controls. External factors such as business cycle effects and the macroeconomic environment will also be considered.

### **D. SREP review of compliance with minimum standards**

79. For certain internal methodologies, credit risk mitigation (CRM) techniques and asset securitisations to be recognised for regulatory capital purposes, banks will need to meet a number of requirements, including risk management standards and disclosures. Banks will be required to disclose features of their internal methodologies used in calculating minimum capital requirements. As part of the supervisory review process, the Authority will ensure that these conditions are being met on an ongoing basis.

80. The review of minimum standards and qualifying criteria are an integral part of the SREP. The BCBS prescribed minimum standards provide the Authority with a useful set of benchmarks that are aligned with bank management expectations for effective risk management and capital allocation.

81. The supervisory review will also encompass the compliance function, as certain conditions and requirements are set for standardised approaches. In this context, there will be a particular need to ensure that use of various instruments that can reduce Pillar 1 capital requirements are utilised and understood as part of a sound, tested, and properly documented risk management process.

### **E. Supervisory response**

82. Having carried out the review process described above, the Authority will take appropriate action if it is not satisfied with the results of the bank's own risk and capital management. The Authority will consider a range of actions, such as those set out under Principles 3 and 4 below.

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### **PRINCIPLE 3**

**Banks must operate above the minimum regulatory capital ratios.  
The Authority will require banks to hold capital in excess of the minimum.**

83. Pillar 1 capital requirements were developed with well-diversified internationally-active banks in mind. Pillar 1 capital requirements include a buffer for uncertainties surrounding the Pillar 1 regime, to provide reasonable assurance that a bank with good internal systems and controls, a well-diversified risk profile and a business profile well-covered by the Pillar 1 regime, and which operates with capital equal to Pillar 1 capital requirements, will meet the minimum goals for soundness embodied in Pillar 1.

84. The Authority is responsible for considering whether the Pillar 1 regime adequately and appropriately caters for the local market and individual banks.

85. Bank-specific uncertainties must be addressed under Pillar 2.

86. Banks are required to operate with (both prescribed and voluntary) buffers over and above the Pillar 1 and the Pillar 2 capital requirements, to cater for change, information challenges, mistakes, uncertainties, unknowns and external threats. The Authority will prescribe buffers as part of a regime of trigger and target capital ratios.

87. A bank must maintain such buffers for a combination of the following: -

- i) Pillar 1 minimums were set to achieve a level of bank creditworthiness in markets that is below the level of creditworthiness sought by many banks for their own reasons. For example, most international banks appear to prefer to be highly rated by internationally recognised rating agencies. Thus, banks are likely to choose to operate above Pillar 1 minimums for competitive reasons.
- ii) In the normal course of business, the type and volume of activities will change, as will the different risk exposures, causing fluctuations in the overall required capital and capital ratio.
- iii) It may be costly for banks to raise additional capital, especially if this needs to be done quickly or during unfavorable market conditions.
- iv) For banks to fall below minimum regulatory capital requirements is a serious matter. It may place banks in breach of the relevant law and/or prompt non-discretionary corrective action on the part of the Authority.
- v) There may be risks, either specific to individual banks, or more generally to an economy at large, that are not taken into account in Pillar 1.

#### **PRINCIPLE 4**

**The Authority will intervene at an early stage to prevent capital from falling below the minimum levels required to support the risk characteristics of a particular bank and will require rapid remedial action if capital is not maintained or restored.**

88. The Authority will consider a range of options if it becomes concerned that a bank is not meeting the requirements embodied in the supervisory principles outlined above. These actions may include intensifying the monitoring of the bank, restricting payment of dividends, requiring the bank to prepare and implement a satisfactory capital adequacy restoration plan, and requiring the bank to raise additional capital immediately. The Authority will exercise discretion to use the tools best suited to the circumstances of the bank and its operating environment, subject to ongoing maintenance of financial sector stability.

89. The permanent solution to banks' difficulties is not always increased capital. However, some of the required measures (such as improving systems and controls) may take time to implement. Therefore, increased capital might be used as an interim measure while permanent measures to improve the bank's position are being put in place. Once these permanent measures have been put in place and have been seen by the Authority to be effective, the Authority can be approached for approval to remove or adjust interim increase in capital requirements.

## VI. SPECIFIC ISSUES TO BE ADDRESSED

90. This section deals with several important issues that a bank must, and the Authority will, particularly focus on when carrying out the ICAAP and SREP. These issues include some key risks which are not directly addressed under Pillar 1 and important assessments that supervisors will make to ensure the proper functioning of certain aspects of Pillar 1.

### A. Interest rate risk in the banking book (IRRBB)<sup>3</sup>

91. IRRBB is a potentially significant risk which merits support from capital. However, there is considerable heterogeneity across internationally active banks in terms of the nature of the underlying risk and the processes for monitoring and managing it. In light of this, the Authority has concluded that it is at this time most appropriate to treat IRRBB under Basel II Pillar 2. The Authority is empowered to establish mandatory minimum capital requirement in respect of IRRBB.

92. Banks' internal systems are the principal tool for the measurement of IRRBB and the supervisory response. To facilitate the Authority's monitoring of IRRBB exposures across institutions, banks must provide the results of their internal measurement systems, expressed in terms of economic value relative to capital, using a standardised interest rate shock.

93. Should the Authority conclude that a bank is not holding capital commensurate with the level of IRRBB, the Authority will require the bank to reduce its IRRBB, to hold a specific additional amount of capital or some combination of the two. The Authority will be particularly attentive to the sufficiency of capital of 'outlier banks' where economic value declines by more than 20% of the sum of Tier 1 and Tier 2 capital arising from a standardised interest rate shock (200 basis points) or its equivalent, as described in the supporting BCBS pronouncement titled *Interest Rate Risk in the Banking Book*.

### B. Residual risk

94. Basel II Pillar 1 allows banks to offset credit or counterparty risk with collateral, guarantees or credit derivatives, leading to reduced capital charges. While banks use credit risk mitigation (CRM) techniques to reduce their credit risk, these techniques give rise to risks that may render the overall risk reduction less effective. Accordingly, these risks (e.g. legal risk, documentation risk, or liquidity risk) to which banks are exposed are of supervisory concern. Where such risks arise, and irrespective of fulfilling the minimum requirements set out in Pillar 1, a bank could find itself with greater credit risk exposure to the underlying counterparty than it had expected. Examples of these risks include: -

- i) Inability to seize, or realise in a timely manner, collateral pledged (on default of the counterparty);
- ii) Refusal or delay by a guarantor to pay; and
- iii) Ineffectiveness of untested documentation.

95. Therefore, the Authority will require banks to have in place appropriate written CRM policies and procedures to control these residual risks. A bank will be required to submit these policies and procedures to the Authority and must regularly review their appropriateness, effectiveness and operation.

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<sup>3</sup> The corresponding risk in the case of Islamic banks is profit rate risk in the banking book.

96. In its CRM policies and procedures, a bank must consider whether, when calculating capital requirements, it is appropriate to give full recognition of the value of the credit risk mitigant as permitted in Pillar 1 and must demonstrate that its CRM management policies and procedures are appropriate to the level of capital benefit that it is recognising. Where the Authority is not satisfied as to the robustness, suitability or application of these policies and procedures it may direct the bank to take immediate remedial action or hold additional capital against residual risk until such time as the deficiencies in the CRM procedures are rectified to the satisfaction of the Authority. For example, the Authority may direct a bank to: -

- i) give less than full recognition of credit risk mitigants (on the whole credit portfolio or by specific product line); and/or
- ii) hold a specific additional amount of capital.

### **C. Credit concentration risk**

97. Unmanaged risk concentrations are a much-too-frequent cause of major problems in banks.

98. A bank must aggregate all similar (direct and indirect) exposures, regardless where the exposures were booked. A risk concentration is any single exposure or group of similar exposures (e.g. to the same borrower or counterparty, including protection providers, geographic area, industry or other risk factors) with the potential to produce (i) losses large enough (relative to a bank's earnings, capital, liquidity, assets or overall risk level) to threaten a bank's creditworthiness, ability to maintain its core operations, liquidity, sustainability, profitability or solvency; or (ii) a material change in a bank's risk profile. Risk concentrations must be analysed on both a bank legal entity and consolidated basis, as an unmanaged concentration at a subsidiary bank may appear immaterial at the consolidated level, but can nonetheless threaten the viability of the subsidiary organisation, which in turn can have knock-on effects on the bank and the group.

99. Risk concentrations must be viewed in the context of a single or a set of closely related risk-drivers that may have different impacts on a bank. These concentrations must be integrated when assessing a bank's overall risk exposure. A bank must consider concentrations that are based on common or correlated risk factors that reflect subtler or more situation-specific factors than traditional concentrations, such as correlations between market, credit risks and liquidity risk.

100. Risk concentrations can arise in a bank'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. Because lending is the primary activity of most banks, credit risk concentrations are often the most material risk concentrations within a bank.

101. Credit risk concentrations, by their nature, are based on common or correlated risk factors, which, in times of stress, have an adverse effect on the creditworthiness of each of the individual counterparties making up the concentration. Concentration risk arises in both direct exposures to obligors and may also occur through exposures to protection providers. Such concentrations are not addressed in the Pillar 1 capital charge for credit risk.

102. The growth of market-based intermediation has increased the possibility that different areas of a bank are exposed to a common set of products, risk factors or counterparties. This has created new challenges for risk aggregation and concentration management. Through its risk management processes and MIS, a bank must be able to identify and aggregate similar risk exposures across the bank, including across legal entities, asset types (e.g. loans, derivatives and structured products), risk areas (e.g. the trading book) and geographic regions. The typical situations in which risk

concentrations can arise include: -

- i) exposures to a single counterparty, borrower or group of connected counterparties or borrowers;
- ii) industry or economic sectors, including exposures to both regulated and non-regulated financial institutions such as hedge funds and private equity entities;
- iii) geographical regions;
- iv) indirect credit exposures arising from credit risk mitigation (CRM) techniques, including exposure to similar collateral types or to a single or closely related credit protection provider;
- v) Credit exposures to counterparties whose financial performance is dependent on the same activity or commodity;
- vi) trading exposures/market risk;
- vii) exposures to counterparties (e.g. hedge funds and hedge counterparties) through the execution or processing of transactions (either product or service);
- viii) funding sources;
- ix) assets that are held in the banking book or trading book, such as loans, derivatives and structured products; and
- x) off-balance sheet exposures, including guarantees, liquidity lines and other commitments.

103. Risk concentrations can also arise through a combination of exposures across these broad categories. A bank must understand its bank-wide risk concentrations resulting from similar exposures across its different business lines. Examples of such business lines include subprime exposure in lending books; counterparty exposures; conduit exposures and structured investment vehicles; contractual and non-contractual exposures; trading activities; and underwriting pipelines.

104. While risk concentrations often arise due to direct exposures to borrowers and obligors, a bank may also incur a concentration to an asset type indirectly through investments backed by such assets (e.g. collateralised debt obligations – CDOs), as well as exposure to protection providers guaranteeing the performance of the specific asset type (e.g. monoline insurers). A bank must have in place adequate, systematic procedures for identifying high correlation 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”).

105. Procedures must be in place to communicate risk concentrations to the board of directors and senior management in a manner that clearly indicates where in the organisation each segment of a risk concentration resides. A bank must have credible 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 it implements risk mitigation strategies, the bank must be aware of possible concentrations that might arise as a result of employing risk mitigation techniques.

106. Banks must employ several techniques, as appropriate, to measure risk concentrations. These techniques include shocks to various risk factors; use of business level and bank-wide scenarios; and the use of integrated stress testing and economic capital models. Identified concentrations must be measured in several ways, including for example consideration of gross versus net exposures, use of notional amounts, and analysis of exposures with and without counterparty hedges.

107. A bank must establish internal position limits for concentrations to which it may be exposed. When conducting periodic stress tests (*see section VIII (C) below on stress testing*), a bank must incorporate all major risk concentrations and identify and respond to potential changes in market conditions that could adversely impact the bank's performance and capital adequacy.

108. The assessment of such risks under a bank's ICAAP must not be a mechanical process, but one in which each bank determines, depending on its business model, its own specific vulnerabilities. An appropriate level of capital for risk concentrations must be incorporated in a bank's ICAAP, as well as in Pillar 2 assessments. Each bank must discuss such issues with the Authority.

109. Not only must 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. In addition, the bank must assess scenarios that consider possible concentrations arising from contractual and non-contractual contingent claims. The scenarios must also combine the potential build-up of pipeline exposures together with the loss of market liquidity and a significant decline in asset values

110. A bank's framework for managing credit risk concentrations must be clearly documented and must include a definition of the credit risk concentrations relevant to the bank and how these concentrations and their corresponding limits are calculated. Limits must be defined in relation to a bank's capital, total assets or, where adequate measures exist, its overall risk level.

111. A bank's management must conduct periodic stress tests of its major credit risk concentrations and review the results of those tests to identify and respond to potential changes in market conditions that could adversely impact the bank's performance.

112. A bank must ensure that, in respect of credit risk concentrations, it complies with the Authority's guidance on credit risk management and credit concentration risk management.

113. The Authority will assess the extent of a bank's credit risk concentrations, how they are managed, and the extent to which the bank considers them in its internal assessment of capital adequacy under Pillar 2. Such assessments must include reviews of the results of a bank's stress tests. The Authority will take appropriate actions where the risks arising from a bank's credit risk concentrations are not adequately addressed by the bank.

#### **D. Counterparty credit risk (CCR)**

114. Counterparty credit risk (CCR) represents a form of credit risk. The bank must have counterparty credit risk management policies, processes and systems that are conceptually sound and implemented with integrity relative to the sophistication and complexity of a bank's holdings of exposures that give rise to CCR. A sound counterparty credit risk management framework must include the identification, measurement, management, approval and internal reporting of CCR.



115. The bank's risk management policies must take account of the market, liquidity, legal and operational risks that can be associated with CCR and, to the extent practicable, interrelationships among those risks. The bank must not undertake business with a counterparty without assessing its creditworthiness and must take due account of both settlement and pre-settlement credit risk. These risks must be managed as comprehensively as practicable at the counterparty level (aggregating counterparty exposures with other credit exposures) and at the bank-wide level.

116. The board of directors and senior management must be actively involved in the CCR control process and must regard this as an essential aspect of the business to which significant resources need to be devoted. Where the bank is using an internal model for CCR, senior management must be aware of the limitations and assumptions of the model used and the impact these can have on the reliability of the output. They must also consider the uncertainties of the market environment (e.g. timing of realisation of collateral) and operational issues (e.g. pricing feed irregularities) and be aware of how these are reflected in the model.

117. In this regard, the daily reports prepared on a bank's exposures to CCR must be reviewed by a level of management with sufficient seniority and authority to enforce both reductions of positions taken by individual credit managers or traders and reductions in the bank's overall CCR exposure.

118. The bank's CCR management system must be used in conjunction with internal credit and trading limits. In this regard, credit and trading limits must be related to the bank's risk measurement model in a manner that is consistent over time and that is well understood by credit managers, traders and senior management.

119. The measurement of CCR must include monitoring daily and intra-day usage of credit lines. The bank must measure current exposure gross and net of collateral held where such measures are appropriate and meaningful (e.g. OTC derivatives, margin lending, etc.). Measuring and monitoring peak exposure or potential future exposure (PFE) at a confidence level chosen by the bank at both the portfolio and counterparty levels is one element of a robust limit monitoring system. Banks must take account of large or concentrated positions, including concentrations by groups of related counterparties, by industry, by market, customer investment strategies, etc.

120. The bank must have a routine and rigorous program of stress testing in place as a supplement to the CCR analysis based on the day-to-day output of the bank's risk measurement model. The results of this stress testing must be reviewed periodically by senior management and must be reflected in the CCR policies and limits set by management and the board of directors. Where stress tests reveal particular vulnerability to a given set of circumstances, management should explicitly consider appropriate risk management strategies (e.g. by hedging against that outcome, or reducing the size of the firm's exposures).

121. A bank must have a routine in place for ensuring compliance with a documented set of internal policies, controls and procedures concerning the operation of the CCR management system. The bank's CCR management system must be well documented, for example, through a risk management manual that describes the basic principles of the risk management system and that provides an explanation of the empirical techniques used to measure CCR.

122. A bank must conduct an independent review of the CCR management system regularly through its own internal auditing process. This review must include both the activities of the business credit and trading units and of the independent CCR control unit. A review of the overall CCR management process must take place at regular intervals (ideally not less than once a year) and must specifically address, at a minimum: -

- i) the adequacy of the documentation of the CCR management system and process;
- ii) the organisation of the CCR control unit;
- iii) the integration of CCR measures into daily risk management;
- iv) the approval process for risk pricing models and valuation systems used by the front and back office personnel;
- v) the validation of any significant change in the CCR measurement process;
- vi) the scope of counterparty credit risks captured by the risk measurement model;
- vii) the integrity of the management information system;
- viii) the accuracy and completeness of CCR data;
- ix) the verification of the consistency, timeliness and reliability of data sources used to run internal models, including the independence of such data sources;
- x) the accuracy and appropriateness of volatility and correlation assumptions;
- xi) the accuracy of valuation and risk transformation calculations;
- xii) the verification of the model's accuracy through frequent back-testing.

123. The Authority will review a bank's evaluation of the risks contained in the transactions that give rise to CCR and the bank's assessment of whether the standardised method captures those risks appropriately and satisfactorily. If the standardised method does not capture the risk inherent in the bank's relevant transactions (as could be the case with structured, more complex OTC derivatives), the Authority will require the bank to apply the current exposure method or the standard method on a transaction-by-transaction basis (i.e. no netting will be recognised).

## **E. Operational risk**

124. Gross income, used in the Basic Indicator Approach for operational risk, is only a proxy for the scale of operational risk exposure of a bank and can in some cases (e.g. for banks with low margins or profitability) underestimate the need for capital for operational risk. With reference to the Committee document on *Principles for the Sound Management of Operational Risk* (June 2011), the Authority will consider whether the capital requirement generated by the Pillar 1 calculation gives a consistent picture of the individual bank's operational risk exposure, for example in comparison with other banks of similar size and with similar operations.

## **F. Market risk**

### ***Policies and procedures for trading book eligibility***

125. Banks must have clearly defined policies and procedures for determining which exposures to include in, and to exclude from, the trading book for purposes of calculating their regulatory capital, to ensure compliance with the Basel II criteria for trading book and taking into account the bank's risk management capabilities and practices. Compliance with these policies and procedures must be fully documented and subject to periodic internal audit.

126. It is incumbent upon the bank satisfying the Authority that the policies and procedures clearly delineate the boundaries of the bank's trading book, in compliance with the general principles set forth in paragraphs 103 to 108 of *AMBD Capital Adequacy Framework*, and consistent with the bank's risk management capabilities and practices. The bank must also satisfy the Authority that transfers of positions between banking and trading books can only occur in a very limited set of circumstances. The Authority will require a bank to modify its policies and procedures when they prove insufficient for preventing the booking in the trading book of positions that are not compliant with the general principles set forth in 103 to 108 of *AMBD Capital Adequacy Framework*, or not consistent with the bank's risk management capabilities and practices.

### **Valuation**

127. Prudent valuation policies and procedures form the foundation on which any robust assessment of market risk capital adequacy must be built. For a well-diversified portfolio consisting of highly liquid cash instruments, and without market concentration, the valuation of the portfolio, combined with minimum qualitative and quantitative standards, may deliver sufficient capital to enable a bank, in adverse market conditions, to close out or hedge its positions within 10 days in an orderly fashion. However, for less well diversified portfolios, for portfolios containing less liquid instruments, for portfolios with concentrations in relation to market turnover, and/or for portfolios which contain large numbers of positions that are marked-to-model this is less likely to be the case. In such circumstances, the Authority will consider whether a bank has sufficient capital. To the extent there is a shortfall the Authority will react appropriately. This will usually require the bank to reduce its risks and/or hold an additional amount of capital.

## VII. OFF BALANCE SHEET EXPOSURES AND SECURITISATION RISK

128. Further to the Pillar 1 principle that banks must take account of the economic substance of transactions in their determination of capital adequacy, the Authority will monitor, as appropriate, whether banks have done so adequately. As a result, regulatory capital treatments for specific securitisation exposures might differ from those specified in Basel II Pillar I, particularly in instances where the general capital requirement would not adequately and sufficiently reflect the risks to which an individual banking organisation is exposed.

129. Amongst other things, the Authority may review where relevant a bank's own assessment of its capital needs and how that has been reflected in the capital calculation as well as the documentation of certain transactions to determine whether the capital requirements accord with the risk profile (e.g. substitution clauses). The Authority will also review the way in which banks have addressed the issue of maturity mismatch in relation to retained positions in their economic capital calculations. The Authority will be vigilant in monitoring for the structuring of maturity mismatches in transactions to artificially reduce capital requirements. Additionally, the Authority may review the bank's economic capital assessment of actual correlation between assets in the pool and how they have reflected that in the calculation. Where the Authority considers that a bank's approach is not adequate, it will take appropriate action. Such action might include denying or reducing capital relief in the case of originated assets, or increasing the capital required against securitisation exposures acquired.

### A. Background

130. Banks' use of securitisation has grown dramatically over the last several years. It has been used as an alternative source of funding and as a mechanism to transfer risk to investors. While the risks associated with securitisation are not new to banks, the recent financial turmoil highlighted unexpected aspects of credit risk, concentration risk, market risk, liquidity risk, legal risk and reputational risk, which banks failed to adequately address. For instance, some banks that were not contractually obligated to support sponsored securitisation structures were unwilling to allow those structures to fail due to concerns about reputational risk and future access to capital markets. The support of these structures exposed the banks to additional and unexpected credit, market and liquidity risk as they brought assets onto their balance sheets, which put significant pressure on their financial profile and capital ratios.

131. Weaknesses in banks' risk management of securitisation and off-balance sheet exposures resulted in large unexpected losses during the financial crisis. To help mitigate these risks, a bank's on- and off-balance sheet securitisation activities must be included in its risk management disciplines, such as product approval, risk concentration limits, and estimates of market, credit and operational risk.

### B. Significance of risk transfer

132. Securitisation transactions may be carried out for purposes other than credit risk transfer (e.g. funding). Where this is the case, there might still be a limited transfer of credit risk. However, for an originating bank to achieve reductions in capital requirements, the risk transfer arising from a securitisation is deemed significant by the Authority. If the Authority considers the risk transfer to be insufficient or non-existent, the Authority can require the application of a higher capital requirement than prescribed under Pillar 1 or, alternatively, may deny a bank from obtaining any capital relief from the securitisations. Therefore, the capital relief that can be achieved will correspond to the amount of credit risk that is effectively transferred. The following includes a set of examples where the Authority may have concerns about the degree of risk transfer, such as retaining or repurchasing significant

amounts of risk or “cherry picking” the exposures to be transferred via a securitisation.

133. Considering the wide range of risks arising from securitisation activities, which can be compounded by rapid innovation in securitisation techniques and instruments, minimum capital requirements calculated under Pillar 1 are often insufficient. All risks arising from securitisation, particularly those that are not fully captured under Pillar 1, must be addressed in a bank’s ICAAP. These risks include: -

- i) Credit, market, liquidity and reputational risk of each exposure;
- ii) Potential delinquencies and losses on the underlying securitised exposures;
- iii) Exposures from credit lines or liquidity facilities to special purpose entities; and
- iv) Exposures from guarantees provided by mono-lines and other third parties.

134. Securitisation exposures must be included in the bank’s MIS to help ensure that senior management understands the implications of such exposures for liquidity, earnings, risk concentration and capital. More specifically, a bank must have the necessary processes in place to capture in a timely manner updated information on securitisation transactions including market data, if available, and updated performance data from the securitisation trustee or servicer.

135. Retaining or repurchasing significant securitisation exposures, depending on the proportion of risk held by the originator, might undermine the intent of a securitisation to transfer credit risk. Specifically, the Authority might expect that a significant portion of the credit risk and of the nominal value of the pool be transferred to at least one independent third party at inception and on an ongoing basis. Where banks repurchase risk for market making purposes, the Authority could find it appropriate for an originator to buy part of a transaction but not, for example, to repurchase a whole tranche. The Authority would expect that where positions have been bought for market making purposes, these positions must be resold within an appropriate period, thereby remaining true to the initial intention to transfer risk.

136. Another implication of realising only a non-significant risk transfer, especially if related to good quality unrated exposures, is that both the poorer quality unrated assets and most of the credit risk embedded in the exposures underlying the securitised transaction are likely to remain with the originator. Accordingly, and depending on the outcome of the supervisory review process, the Authority may increase the capital requirement for particular exposures or even increase the overall level of capital the bank is required to hold.

### **C. Market innovations**

137. As the minimum capital requirements for securitisation may not be able to address all potential issues, the Authority will consider new features of securitisation transactions as they arise. Such assessments would include reviewing the impact new features may have on credit risk transfer and, where appropriate, the Authority will take appropriate action under Pillar 2. A Pillar 1 response may be formulated to take account of market innovations. Such a response may take the form of a set of operational requirements and/or a specific capital treatment.

#### D. Risk evaluation and management

138. A bank must conduct analyses of the underlying risks when investing in the structured products and must not solely rely on the external credit ratings assigned to securitisation exposures by the credit rating agencies (CRAs). A bank must 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 risk, especially where ratings for certain asset classes have a limited history or have been shown to be volatile. Moreover, a bank also must conduct credit analysis of the securitisation exposure at acquisition and on an ongoing basis. It must also have in place the necessary quantitative tools, valuation models and stress tests of sufficient sophistication to reliably assess all relevant risks.

139. When assessing securitisation exposures, a bank must ensure that it fully understands the credit quality and risk characteristics of the underlying exposures in structured credit transactions, including any risk concentrations. In addition, a bank must review the maturity of the exposures underlying structured credit transactions relative to the issued liabilities to assess potential maturity mismatches.

140. A bank must track credit risk in securitisation exposures at the transaction level and across securitisations exposures within each business line and across business lines. It must produce reliable measures of aggregate risk. A bank also must track all meaningful concentrations in securitisation exposures, such as name, product or sector concentrations, and feed this information to bank-wide risk aggregation systems that track, for example, credit exposure to a particular obligor.

141. A bank's own assessment of risk needs to be based on a comprehensive understanding of the structure of the securitisation transaction. It must identify the types of triggers, credit events and other legal provisions that may affect the performance of its on- and off-balance sheet exposures and integrate these triggers and provisions into its funding/liquidity, credit and balance sheet management. The impact of the events or triggers on a bank's liquidity and capital position must also be considered.

142. Banks either underestimated or did not anticipate that a market-wide disruption could prevent them from securitising warehoused or pipeline exposures and did not anticipate the effect this could have on liquidity, earnings and capital adequacy. As part of its risk management processes, a bank must consider and, where appropriate, mark-to-market warehoused positions, as well as those in the pipeline, regardless of the probability of securitizing the exposures. It must consider scenarios which may prevent it from securitising its assets as part of its stress testing (***as discussed below in section VIII (C) on stress testing***) and identify the potential effect of such exposures on its liquidity, earnings and capital adequacy.

143. A bank must develop prudent contingency plans specifying how it would respond to funding, capital and other pressures that arise when access to securitisation markets is reduced. The contingency plans must also address how the bank would address valuation challenges for potentially illiquid positions held for sale or for trading. The risk measures, stress testing results and contingency plans must be incorporated into the bank's risk management processes and its ICAAP, and must result in an appropriate level of capital under Pillar 2 in excess of the minimum requirements.

144. A bank that employs risk mitigation techniques must 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 the bank does not understate the true risk in its assessment of capital. In particular, it must consider whether it would provide support to the securitisation structures in stressed scenarios due to the reliance on securitisation as a funding tool.

## **E. Reputation risk and provision of implicit support**

145. Reputational risk can be defined as the risk arising from negative perception on the part of customers, counterparties, shareholders, investors, debt-holders, market analysts, other relevant parties or regulators that can adversely affect a bank's ability to maintain existing, or establish new, business relationships and continued access to sources of funding (e.g. through the interbank or securitisation markets). Reputational risk is multidimensional and reflects the perception of other market participants. Furthermore, it exists throughout the organisation and exposure to reputational risk is essentially a function of the adequacy of the bank's internal risk management processes, as well as the manner and efficiency with which management responds to external influences on bank-related transactions.

146. Support to a transaction, whether contractual (i.e. credit enhancements provided at the inception of a securitised transaction) or non-contractual (implicit support) can take numerous forms. For instance, contractual support can include over collateralisation, credit derivatives, spread accounts, contractual recourse obligations, subordinated notes, credit risk mitigants provided to a specific tranche, the subordination of fee or interest income or the deferral of margin income, and clean-up calls that exceed 10 percent of the initial issuance. Examples of non-contractual support include the purchase of deteriorating credit risk exposures from the underlying pool, the sale of discounted credit risk exposures into the pool of securitised credit risk exposures, the purchase of underlying exposures at above market price or an increase in the first loss position according to the deterioration of the underlying exposures.

147. The provision of implicit (or non-contractual) support, as opposed to contractual credit support (i.e. credit enhancements), raises significant supervisory concerns. For traditional securitisation structures the provision of implicit support undermines the clean break criteria, which when satisfied would allow banks to exclude the securitised assets from regulatory capital calculations. For synthetic securitisation structures, it negates the significance of risk transference. By providing implicit support, banks signal to the market that the risk is still with the bank and has not in effect been transferred. The institution's capital calculation therefore understates the true risk. Accordingly, the Authority will take appropriate action when a banking organisation provides implicit support.

148. Threats to the reputation of a bank can lead to a decision by the board and/or management of the bank to provide implicit or explicit support, which may give rise to credit, liquidity, market and legal risk – all of which can have a negative impact on a bank's earnings, liquidity and capital position. A bank must identify potential sources of reputational risk to which it is exposed. These include the bank's business lines, liabilities, affiliated operations, off-balance sheet vehicles and the markets in which it operates. The risks that arise must be incorporated into the bank's risk management processes and appropriately addressed in its ICAAP and liquidity contingency plans.

149. When a bank has been found to provide support to a securitisation, it will be required to hold capital against all the underlying exposures associated with the structure as if they had not been securitised. It will also be required to disclose publicly that it was found to have provided non-contractual support, as well as the resulting increase in the capital charge. The aim is to require banks to hold capital against exposures for which they assume the credit risk, and to discourage them from providing non-contractual support.

150. If a bank is found to have provided non-contractual support on more than one occasion, the bank is required to disclose its transgression publicly and the Authority will take appropriate action that may include, but is not limited to, one or more of the following: -

- i) The bank may be prevented from gaining favorable capital treatment on securitised assets for a period of time to be determined by the Authority;
- ii) The bank may be required to hold capital against all securitised assets as though the bank had created a commitment to them, by applying a conversion factor to the risk weight of the underlying assets;
- iii) For purposes of capital calculations, the bank may be required to treat all securitised assets as if they remained on the balance sheet;
- iv) The bank may be required by the Authority to hold regulatory capital in excess of the minimum risk-based capital ratios.

151. Prior to the 2007 upheaval, many banks failed to recognise the reputational risk associated with their off-balance sheet vehicles. In stressed conditions some banks went beyond their contractual obligations to support their sponsored securitisations and off-balance sheet vehicles. A bank must incorporate the exposures that could give rise to reputational risk into its assessments of whether the requirements under the securitisation framework have been met and the potential adverse impact of providing implicit support.

152. Reputational risk may arise, for example, from a bank's sponsorship of securitisation structures such as ABCP conduits and SIVs, as well as from the sale of credit exposures to securitisation trusts. It may also arise from a bank's involvement in asset or funds management, particularly when financial instruments are issued by owned or sponsored entities and are distributed to the customers of the sponsoring bank. If the instruments were not correctly priced or the main risk drivers not adequately disclosed, a sponsor may feel some responsibility to its customers, or be economically compelled, to cover any losses. Reputational risk also arises when a bank sponsors activity, such as money market mutual funds, in-house hedge funds and real estate investment trusts (REITs). In these cases, a bank may decide to support the value of shares/units held by investors even though it is not contractually required to provide the support.

153. The financial market crisis has provided several examples of banks providing financial support that exceeded their contractual obligations. To preserve their reputation, some banks felt compelled to provide liquidity support to their SIVs, which was beyond their contractual obligations. In other cases, banks purchased ABCP issued by vehicles they sponsored to maintain market liquidity. As a result, these banks assumed additional liquidity and credit risks, which put pressure on capital ratios.

154. Reputational risk also may affect a bank's liabilities, since market confidence and a bank's ability to fund its business are closely related to its reputation. For instance, to avoid damaging its reputation, a bank may call its liabilities even though this might negatively affect its liquidity profile. This is particularly true for liabilities that are components of regulatory capital, such as hybrid/subordinated debt. In such cases, a bank's capital position is likely to suffer.

155. Bank management must have appropriate policies in place to identify sources of reputational risk when entering new markets, products or lines of activities. In addition, a bank's stress testing procedures must take account of reputation risk so management has a firm understanding of the consequences and second round effects of reputational risk.



156. Once a bank identifies potential exposures arising from reputational concerns, it must measure the amount of support it might have to provide (including implicit support of securitisations) or losses it might experience under adverse market conditions. To avoid reputational damages and to maintain market confidence, a bank must develop methodologies to measure as precisely as possible the effect of reputational risk in terms of other risk types (e.g. credit, liquidity, market or operational risk) to which it may be exposed. This could be accomplished by including reputational risk scenarios in regular stress tests. For instance, non-contractual off-balance sheet exposures could be included in the stress tests to determine the effect on a bank's credit, market and liquidity risk profiles. Methodologies also could include comparing the actual amount of exposure carried on the balance sheet versus the maximum exposure amount held off-balance sheet, that is, the potential amount to which the bank could be exposed.

157. A bank must pay attention to the effects of reputational risk on its overall liquidity position, taking into account both possible increases in the asset side of the balance sheet and possible restrictions on funding, should the loss of reputation result in various counterparties' loss of confidence.

158. In contrast to contractual credit exposures, such as guarantees, implicit support is a subtler form of exposure. Implicit support arises when a bank provides post-sale support to a securitisation transaction in excess of any contractual obligation. Such non-contractual support exposes a bank to the risk of loss, such as loss arising from deterioration in the credit quality of the securitisation's underlying assets.

159. By providing implicit support, a bank signals to the market that all the risks inherent in the securitised assets are still held by the organisation and, in effect, had not been transferred. Since the risk arising from the potential provision of implicit support is not captured ex-ante under Pillar 1, it must be considered as part of the Pillar 2 process. In addition, the processes for approving new products or strategic initiatives must consider the potential provision of implicit support and must be incorporated in a bank's ICAAP.

160. The Authority will be vigilant in determining implicit support and will take appropriate supervisory action to mitigate the effects. Pending any investigation, the bank may be prohibited from any capital relief for planned securitisation transactions (moratorium). The Authority's supervisory response will be aimed at changing the bank's behavior regarding the provision of implicit support, and to correct market perception as to the willingness of the bank to provide future recourse beyond contractual obligations.

## **F. Residual risks**

161. As with credit risk mitigation (CRM) techniques more generally, the Authority will review the appropriateness of banks' approaches to the recognition of credit protection. In particular, with regard to securitisations, the Authority will review the appropriateness of protection recognised against first loss credit enhancements. On these positions, expected loss is less likely to be a significant element of the risk and is likely to be retained by the protection buyer through the pricing. Therefore, the Authority will expect banks' policies to take account of this in determining their economic capital. Where the Authority does not consider the approach to protection recognised is adequate, it will take appropriate action. Such action may include increasing the capital requirement against a particular transaction or class of transactions.

## G. Call provisions

162. The Authority expects a bank not to make use of clauses that entitles it to call the securitisation transaction or the coverage of credit protection prematurely if this would increase the bank's exposure to losses or deterioration in the credit quality of the underlying exposures.

163. Besides the general principle stated above, the Authority expects banks to only execute clean-up calls for economic business purposes, such as when the cost of servicing the outstanding credit exposures exceeds the benefits of servicing the underlying credit exposures.

164. Subject to national discretion, the Authority may require a review prior to the bank exercising a call which can be expected to include consideration of: -

- i) The rationale for the bank's decision to exercise the call; and
- ii) The impact of the exercise of the call on the bank's regulatory capital ratio.

165. The Authority may also require the bank to enter into a follow-up transaction, if necessary, depending on the bank's overall risk profile, and existing market conditions.

166. Date related calls must be set at a date no earlier than the duration or the weighted average life of the underlying securitisation exposures. Accordingly, the Authority may require a minimum period to elapse before the first possible call date can be set, given, for instance, the existence of up-front sunk costs of a capital market securitisation transaction.

## H. Early amortisation

167. The Authority must review how banks internally measure, monitor, and manage risks associated with securitisations of revolving credit facilities, including an assessment of the risk and likelihood of early amortisation of such transactions. At a minimum, the Authority must ensure that banks have implemented reasonable methods for allocating economic capital against the economic substance of the credit risk arising from revolving securitisations and must expect banks to have adequate capital and liquidity contingency plans that evaluate the probability of an early amortisation occurring and address the implications of both scheduled and early amortisation. In addition, the capital contingency plan must address the possibility that the bank will face higher levels of required capital under the early amortisation Pillar 1 capital requirement.

168. Because most early amortisation triggers are tied to excess spread levels, the factors affecting these levels must be well understood, monitored, and managed, to the extent possible (*see section VII (E) on Provision of Implicit support, above*), by the originating bank. For example, the following factors affecting excess spread must generally be considered: -

- i) Interest payments made by borrowers on the underlying receivable balances;
- ii) Other fees and charges to be paid by the underlying obligors (e.g. late-payment fees, cash advance fees, over-limit fees);
- iii) Gross charge-offs;
- iv) Principal payments;

- v) Recoveries on charged-off loans;
- vi) Interchange income;
- vii) Interest paid on investors' certificates;
- viii) Macroeconomic factors such as bankruptcy rates, interest rate movements, unemployment rates; etc.

169. Banks must consider the effects that changes in portfolio management or business strategies may have on the levels of excess spread and on the likelihood of an early amortisation event. For example, marketing strategies or underwriting changes that result in lower finance charges or higher charge-offs, might also lower excess spread levels and increase the likelihood of an early amortisation event.

170. Banks must use techniques such as static pool cash collections analyses and stress tests to better understand pool performance. These techniques can highlight adverse trends or potential adverse impacts. Banks must have policies in place to respond promptly to adverse or unanticipated changes. The Authority will take appropriate action where it does not consider these policies adequate. Such action may include, but is not limited to, directing a bank to obtain a dedicated liquidity line or raising the early amortisation credit conversion factor, thus, increasing the bank's capital requirements.

171. While the early amortisation capital charge described in Pillar 1 is meant to address potential supervisory concerns associated with an early amortisation event, such as the inability of excess spread to cover potential losses, the policies and monitoring described in this section recognise that a given level of excess spread is not, by itself, a perfect proxy for credit performance of the underlying pool of exposures. In some circumstances, for example, excess spread levels may decline so rapidly as to not provide a timely indicator of underlying credit deterioration. Further, excess spread levels may reside far above trigger levels, but still exhibit a high degree of volatility which could warrant supervisory attention. In addition, excess spread levels can fluctuate for reasons unrelated to underlying credit risk, such as a mismatch in the rate at which finance charges reprice relative to investor certificate rates. Routine fluctuations of excess spread might not generate supervisory concerns, even when they result in different capital requirements. This is particularly the case as a bank moves in or out of the first step of the early amortisation credit conversion factors. On the other hand, existing excess spread levels may be maintained by adding (or designating) an increasing number of new accounts to the master trust, an action that would tend to mask potential deterioration in a portfolio. For these reasons, the Authority will place particular emphasis on internal management, controls, and risk monitoring activities with respect to securitisations with early amortisation features.

172. The Authority expects that the sophistication of a bank's system in monitoring the likelihood and risks of an early amortisation event will be commensurate with the size and complexity of the bank's securitisation activities that involve early amortisation provisions.

173. For controlled amortisations specifically, the Authority may also review the process by which a bank determines the minimum amortisation period required to pay down 90% of the outstanding balance at the point of early amortisation. Where the Authority does not consider this adequate it will take appropriate action, such as increasing the conversion factor associated with a particular transaction or class of transactions.

## VIII. OTHER ISSUES

### A. Valuation practices

174. To enhance the supervisory assessment of banks' valuation practices, the Basel Committee published *Supervisory guidance for assessing banks' financial instrument fair value practices* in April 2009.<sup>4</sup> This guidance applies to all positions that are measured at fair value and at all times, not only during times of stress.

175. The characteristics of complex structured products, including securitisation transactions, make their valuation inherently difficult due, in part, to the absence of active and liquid markets, the complexity and uniqueness of the cash waterfalls, and the links between valuations and underlying risk factors. The absence of a transparent price from a liquid market means that the valuation must rely on models or proxy-pricing methodologies, as well as on expert judgment. The outputs of such models and processes are highly sensitive to the inputs and parameter assumptions adopted, which may themselves be subject to estimation error and uncertainty. Moreover, calibration of the valuation methodologies is often complicated by the lack of readily available benchmarks.

176. Therefore, a bank is expected to have adequate governance structures and control processes for fair valuing exposures for risk management and financial reporting purposes. The valuation governance structures and related processes must be embedded in the overall governance structure of the bank, and consistent for both risk management and reporting purposes. The governance structures and processes are expected to explicitly cover the role of the board and senior management. In addition, the board must receive reports from senior management on the valuation oversight and valuation model performance issues that are brought to senior management for resolution, as well as all significant changes to valuation policies.

177. A bank must also have clear and robust governance structures for the production, assignment and verification of financial instrument valuations. Policies must ensure that the approvals of all valuation methodologies are well documented. In addition, policies and procedures must set forth the range of acceptable practices for the initial pricing, marking-to-market/model, valuation adjustments and periodic independent revaluation. New product approval processes must include all internal stakeholders relevant to risk measurement, risk control, and the assignment and verification of valuations of financial instruments.

178. A bank's control processes for measuring and reporting valuations must be consistently applied across the bank and integrated with risk measurement and management processes. Valuation controls must be applied consistently across similar instruments (risks) and consistent across business lines (books). These controls must be subject to internal audit. Regardless of the booking location of a new product, reviews and approval of valuation methodologies must be guided by a minimum set of considerations. Furthermore, the valuation/new product approval process must be supported by a transparent, well-documented inventory of acceptable valuation methodologies that are specific to products and businesses.

179. To establish and verify valuations for instruments and transactions in which it engages, a bank must have adequate capacity, including during periods of stress. This capacity must be commensurate with the importance, riskiness and size of these exposures in the context of the business profile of the institution. In addition, for those exposures that represent material risk, a bank is expected to have the capacity to produce valuations using alternative methods should primary inputs and approaches

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<sup>4</sup> See also the Basel Committee's paper *Fair value measurement and modelling: an assessment of challenges and lessons learned from the market stress*, May 2008

become unreliable, unavailable or not relevant due to market discontinuities or illiquidity. A bank must test and review the performance of its models under stress conditions so that it understands the limitations of the models under stress conditions.

180. The relevance and reliability of valuations is directly related to the quality and reliability of the inputs. A bank is expected to apply the accounting guidance provided to determine the relevant market information and other factors likely to have a material effect on an instrument's fair value when selecting the appropriate inputs to use in the valuation process. Where values are determined to be in an active market, a bank must maximise the use of relevant observable inputs and minimise the use of unobservable inputs when estimating fair value using a valuation technique. However, where a market is deemed inactive, observable inputs or transactions may not be relevant, such as in a forced liquidation or distress sale, or transactions may not be observable, such as when markets are inactive. In such cases, accounting fair value guidance aids on what must be considered, but may not be determinative. In assessing whether a source is reliable and relevant, a bank must consider, among other things: -

- i) the frequency and availability of the prices/quotes;
- ii) whether those prices represent actual regularly occurring transactions on an arm's length basis;
- iii) the breadth of the distribution of the data and whether it is generally available to the relevant participants in the market;
- iv) the timeliness of the information relative to the frequency of valuations;
- v) the number of independent sources that produce the quotes/prices;
- vi) whether the quotes/prices are supported by actual transactions;
- vii) the maturity of the market; and
- viii) the similarity between the financial instrument sold in a transaction and the instrument held by the institution.

181. A bank's external reporting must provide timely, relevant, reliable and decision useful information that promotes transparency. Senior management must consider whether disclosures around valuation uncertainty can be made more meaningful. For instance, the bank may describe the modelling techniques and the instruments to which they are applied; the sensitivity of fair values to modelling inputs and assumptions; and the impact of stress scenarios on valuations. A bank must regularly review its disclosure policies to ensure that the information disclosed continues to be relevant to its business model and products and to current market conditions.

## **B. Liquidity risk management and supervision**

182. The financial market crisis underscores the importance of assessing the potential impact of liquidity risk on capital adequacy in a bank's ICAAP. Senior management must consider the relationship between liquidity and capital since liquidity risk can impact capital adequacy which, in turn, can aggravate a bank's liquidity profile.

183. In September 2008, the Basel Committee published *Principles for Sound Liquidity Risk Management and Supervision*, which stresses that banks need to have strong liquidity cushions in order to weather prolonged periods of financial market stress and illiquidity. The standards address many of the shortcomings experienced by the banking sector during the market turmoil that began in mid-2007, including those related to stress testing practices, contingency funding plans, management of on- and off-balance sheet activity and contingent commitments. The Basel Committee's liquidity guidance outlines requirements for sound practices for the liquidity risk management of banks. The fundamental principle is that a bank must both assiduously manage its liquidity risk and also maintain sufficient liquidity to withstand a range of stress events. Liquidity is a critical element of a bank's resilience to stress, and as such, a bank must maintain a liquidity cushion, made up of unencumbered, high quality liquid assets, to protect against liquidity stress events, including potential losses of unsecured and typically available secured funding sources.

184. A key element in the management of liquidity risk is the need for strong governance of liquidity risk, including the setting of a liquidity risk tolerance by the board. The risk tolerance must be communicated throughout the bank and reflected in the strategy and policies that senior management set to manage liquidity risk. Another facet of liquidity risk management is that a bank must appropriately price the costs, benefits and risks of liquidity into the internal pricing, performance measurement, and new product approval process of all significant business activities.

185. A bank is expected to be able to thoroughly identify, measure and control liquidity risks, especially regarding complex products and contingent commitments (both contractual and non-contractual). This process must involve the ability to project cash flows arising from assets, liabilities and off-balance sheet items over various time horizons, and must ensure diversification in both the tenor and source of funding. A bank must utilise early warning indicators to identify the emergence of increased risk or vulnerabilities in its liquidity position or funding needs. It must have the ability to control liquidity risk exposure and funding needs, regardless of its organisation structure, within and across legal entities, business lines, and currencies, considering any legal, regulatory and operational limitations to the transferability of liquidity.

186. A bank's failure to effectively manage intraday liquidity could leave it unable to meet its payment obligations at the time expected, which could lead to liquidity dislocations that cascade quickly across many systems and institutions. As such, the bank's management of intraday liquidity risks must be considered as a crucial part of liquidity risk management. It must also actively manage its collateral positions and can calculate all its collateral positions.

187. While banks typically manage liquidity under "normal" circumstances, they must also be prepared to manage liquidity under stressed conditions. A bank must perform stress tests or scenario analyses on a regular basis to identify and quantify their exposures to potential future liquidity stresses, analysing possible impacts on the institutions' cash flows, liquidity positions, profitability, and solvency. The results of these stress tests must be discussed thoroughly by management, and based on this discussion, must form the basis for taking remedial or mitigating actions to limit the bank's exposures, build up a liquidity cushion, and adjust its liquidity profile to fit its risk tolerance. The results of stress tests must also play a key role in shaping the bank's contingency funding planning, which must outline policies for managing a range of stress events and clearly sets out strategies for addressing liquidity shortfalls in emergency situations.

188. As public disclosure increases certainty in the market, improves transparency, facilitates valuation, and strengthens market discipline, it is important that banks publicly disclose information on a regular basis that enables market participants to make informed decisions about the soundness of their liquidity risk management framework and liquidity position.

189. The liquidity guidance also augments sound practices and emphasises the importance of assessing the adequacy of a bank's liquidity risk management and its level of liquidity. The guidance emphasises the importance of supervisors assessing the adequacy of a bank's liquidity risk management framework and its level of liquidity, and suggests steps that the Authority will take if these are deemed inadequate. The principles also stress the importance of effective cooperation between the Authority and other key stakeholders, such as central banks, especially in times of stress.

### **C. Sound stress testing practices**

190. To strengthen banks' stress testing practices, as well as improve supervision of those practices, in May 2009 the Basel Committee published *Principles for sound stress testing practices and supervision*. Improvements in stress testing alone cannot address all risk management weaknesses, but as part of a comprehensive approach, stress testing has a leading role to play in strengthening bank corporate governance and the resilience of individual banks and the financial system.

191. Stress testing is a valuable tool that is used by banks as part of their internal risk management that alerts bank management to adverse unexpected outcomes related to a broad variety of risks, and provides an indication to banks of how much capital might be needed to absorb losses should large shocks occur. Moreover, stress testing supplements other risk management approaches and measures. It plays a key role in: -

- i) providing forward looking assessments of risk;
- ii) overcoming limitations of models and historical data;
- iii) supporting internal and external communication;
- iv) feeding into capital and liquidity planning procedures;
- v) informing the setting of a banks' risk tolerance;
- vi) addressing existing or potential, bank-wide risk concentrations; and
- vii) facilitating the development of risk mitigation or contingency plans across a range of stressed conditions.

192. Stress testing is especially important after extended periods of benign risk, when the fading memory of negative economic conditions can lead to complacency and the underpricing of risk, and when innovation leads to the rapid growth of new products for which there is limited or no loss data.

193. Stress testing must form an integral part of the overall governance and risk management culture of the bank. Board and senior management involvement in setting stress testing objectives, defining scenarios, discussing the results of stress tests, assessing potential actions and decision making is critical in ensuring the appropriate use of stress testing in banks' risk governance and capital planning. Senior management must take an active interest in the development in, and operation of, stress testing. The results of stress tests must contribute to strategic decision making and 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. Board and senior management involvement in the stress testing program is essential for its effective operation.

194. A bank must have in place policies on stress testing and sound stress testing processes for use in the assessment of capital adequacy. Stress testing must involve identifying possible events or future

changes in economic conditions that could have unfavorable effects on a bank's risk exposures and assessment of the bank's ability to withstand such changes. Examples of scenarios that could be used include (i) economic or industry downturns; (ii) market-risk events; and (iii) liquidity conditions.

195. A bank must have a routine and rigorous program of stress testing in place as a supplement to its risk management and output of its risk evaluation and measurement processes. The results of this stress testing must be reviewed periodically by senior management and must be reflected in policies and limits set by management and the board of directors. Where stress tests reveal particular vulnerability to a given set of circumstances, management must explicitly consider appropriate risk management strategies (e.g. by hedging against that outcome, or reducing the size of the bank's exposures).

196. A bank must ensure that it has sufficient capital to meet the Pillar 1 capital adequacy requirements and the stress test results (where a deficiency has been indicated). The Authority may wish to review how the stress test has been carried out. The results of a stress test will thus contribute directly to the expectation that a bank will operate above the Pillar 1 minimum regulatory capital ratios. The Authority will consider whether a bank has sufficient capital for these purposes. To the extent that there is a shortfall, the Authority will react appropriately. This will usually involve requiring the bank to reduce its risks and/or to hold additional capital/provisions, so that existing capital resources could cover the Pillar 1 requirements plus the result of a recalculated stress test.

197. The stress tests applied by a bank and, in particular, the calibration of those tests (e.g. the parameters of the shocks or types of events considered) must be reconciled back to a clear statement setting out the premise upon which the bank's internal capital assessment is based (e.g. ensuring there is adequate capital to manage the traded portfolios within stated limits through what may be a prolonged period of market stress and illiquidity, or that there is adequate capital to ensure that, over a given time horizon to a specified confidence level, all positions can be liquidated or the risk hedged in an orderly fashion). The market shocks applied in the tests must reflect the nature of portfolios and the time it could take to hedge out or manage risks under severe market conditions.

198. To provide a complementary risk perspective to other risk management tools such as Value at Risk (VaR) and economic capital, stress tests must be used to provide an independent risk perspective. Stress tests must complement risk management models that are based on complex, quantitative models using backward looking data and estimated statistical relationships. In particular, stress testing outcomes for a particular portfolio can provide insights about the validity of statistical models at high confidence intervals, used to determine for example VaR. Therefore, a bank's capital planning process must incorporate rigorous, forward-looking stress testing that identifies possible events or changes in market conditions that could adversely impact the bank. Banks, under their ICAAPs must, and the Authority, under Pillar 2, will, examine future capital resources and capital requirements under adverse scenarios. In particular, the results of forward-looking stress testing must be considered when evaluating the adequacy of a bank's capital buffer. Capital adequacy must be assessed under stressed conditions against a variety of capital ratios, including regulatory ratios, as well as ratios based on the bank's internal definition of capital resources. In addition, the possibility that a crisis impairs the ability of even very healthy banks to raise funds at reasonable cost must be considered.

199. Stress testing is particularly important in the management of warehouse and pipeline risk. Many of the risks associated with pipeline and warehoused exposures emerge when a bank is unable to access the securitisation market due to either bank specific or market stresses. A bank must therefore include such exposures in their regular stress tests regardless of the probability of the pipeline exposures being securitised.



200. In addition, a bank must develop methodologies to measure the effect of reputational risk in terms of other risk types, namely credit, liquidity, market and other risks that they may be exposed to in order to avoid reputational damages and in order to maintain market confidence. This could be done by including reputational risk scenarios in regular stress tests. For instance, including non-contractual off-balance sheet exposures in the stress tests to determine the effect on a bank's credit, market and liquidity risk profiles.

201. A bank must carefully assess the risks with respect to commitments to off-balance sheet vehicles and third-party firms related to structured credit securities and the possibility that assets will need to be taken on balance sheet for reputational reasons. Therefore, in its stress testing program, a bank must include scenarios assessing the size and soundness of such vehicles and firms relative to its own financial, liquidity and regulatory capital positions. This analysis must include structural, solvency, liquidity and other risk issues, including the effects of covenants and triggers.

202. The Authority will assess the effectiveness of banks' stress testing programs in identifying relevant vulnerabilities. The Authority will challenge banks on how stress testing is used and the way it affects day-to-day decision-making. Where this assessment reveals material shortcomings, the Authority will require a bank to detail a plan of corrective action.

#### **D. Sound compensation practices**

203. Risk management must be embedded in the culture of a bank. It must be a critical focus of the CEO, CRO, senior management, trading desk and other business line heads and employees in making strategic and day-to-day decisions. For a broad and deep risk management culture to develop and be maintained over time, compensation policies must not be unduly linked to short-term accounting profit generation. Compensation policies must be linked to longer-term capital preservation and the financial strength of the bank, and must consider risk-adjusted performance measures. In addition, a bank must provide adequate disclosure regarding its compensation policies to stakeholders. Each bank's board of directors and senior management have the responsibility to mitigate the risks arising from remuneration policies in order to ensure effective bank-wide risk management.

204. Compensation practices at large financial institutions are one factor among many that contributed to the financial crisis that began in 2007. High short-term profits led to generous bonus payments to employees without adequate regard to the longer-term risks they imposed on their banks. These incentives amplified the excessive risk-taking that has threatened the global financial system and left banks with fewer resources to absorb losses as risks materialised. The lack of attention to risk also contributed to the large, in some cases extreme, absolute level of compensation in the industry. As a result, to improve compensation practices and strengthen supervision in this area, particularly for systemically important banks, the Financial Stability Board (formerly the Financial Stability Forum) published its *Principles for Sound Compensation Practices* in April 2009. Those principles, which must be implemented by banks and will be reinforced by the Authority.

205. A bank's board of directors must actively oversee the compensation system's design and operation, which must not be controlled primarily by the chief executive officer and management team. Relevant board members and employees must have independence and expertise in risk management and compensation.

206. In addition, the board of directors must monitor and review the compensation system to ensure the system includes adequate controls and operates as intended. The practical operation of the system must be regularly reviewed to ensure compliance with policies and procedures. Compensation outcomes, risk measurements, and risk outcomes must be regularly reviewed for

consistency with intentions.

207. Staff that are engaged in the financial and risk control areas must be independent, have appropriate authority, and be compensated in a manner that is independent of the business areas they oversee and commensurate with their key role in the bank. Effective independence and appropriate authority of such staff is necessary to preserve the integrity of financial and risk management's influence on incentive compensation.

208. Compensation must be adjusted for all types of risk so that remuneration is balanced between the profit earned and the degree of risk assumed in generating the profit. In general, both quantitative measures and human judgment must play a role in determining the appropriate risk adjustments, including those that are difficult to measure such as liquidity risk and reputation risk.

209. Compensation outcomes must be symmetric with risk outcomes and compensation systems must link the size of the bonus pool to the overall performance of the bank. Employees' incentive payments must be linked to the contribution of the individual and business to the bank's overall performance.

210. Compensation payout schedules must be sensitive to the time horizon of risks. Profits and losses of different activities of a bank are realised over different periods of time. Variable compensation payments must be deferred accordingly. Payments must not be finalised over short periods where risks are realised over long periods. Management must question payouts for income that cannot be realised or whose likelihood of realisation remains uncertain at the time of payout.

211. The mix of cash, equity and other forms of compensation must be consistent with risk alignment. The mix will vary depending on the employee's position and role. The bank must be able to explain the rationale for its mix.

212. The Authority's review of compensation practices will be rigorous and sustained, and deficiencies must be addressed promptly with the appropriate supervisory action. The Authority will include compensation practices in its risk assessment of banks, and banks must work constructively with supervisors to ensure their practices are adequate. The Authority will strive for effective review and intervention.

213. Banks must disclose clear, comprehensive and timely information about their compensation practices to facilitate constructive engagement by all stakeholders, including in particular shareholders. Stakeholders need to be able to evaluate the quality of support for the bank's strategy and risk posture. Appropriate disclosure related to risk management and other control systems will enable a bank's counterparties to make informed decisions about their business relations with the bank.

214. The Authority will access all necessary information to evaluate banks' compensation practices.

## **IX. ICAAP SUBMISSION**

215. To facilitate the process of generating a formal ICAAP submission, an example format of an ICAAP submission is presented in **ANNEXURE A** titled *Internal Capital Adequacy Assessment – Example format*.

- END -

## ANNEXURE A: EXAMPLE OF ICAAP FORMAT

### Introduction

The Authority expects that there will be variation in the length and format of the various banks' ICAAP submissions, since banks' business and risk profiles differ. The ICAAP document should be proportional to the size, nature and complexity of a bank's business.

This example format constitutes one of a myriad of possible ICAAP submission formats. Banks are not obliged to adopt this format, though some banks may find it useful as a trigger to get their thinking going. This format constitutes a starting point and a skeleton, and it is neither comprehensive nor the ideal format.

It is incumbent upon a bank to ensure that its ICAAP submission complies with the relevant framework and prescriptions, and it must not rely merely on this example format for that purpose.

### What is an ICAAP document?

An ICAAP document is a bank's formalisation at a point in time of its capital management that may be based on existing internal documentation from numerous sources. The document must be pitched at the level of the board of directors and senior management, though any and all supporting information must be readily available if called for.

The bank's board of directors and senior management must formally approve the contents of bank's ICAAP submission, which must be signed off by the bank's chairman and its CEO.

A bank's ICAAP submission must be logically structured and the key assumptions and decisions must be highlighted.

Where appropriate, key technical information on risk measurement and capital methodologies, and all other work carried out to validate the approach (e.g. board papers and minutes, internal or external reviews) could be contained in appendices.

### 1. EXECUTIVE SUMMARY

The purpose of the Executive Summary is to present an overview of the ICAAP methodology and results. This overview would typically include: -

- i. The purpose of the report;
- ii. The scope of the report, including which group entities are covered by the ICAAP;
- iii. The key assumptions underlying the report;
- iv. The main findings of the ICAAP analysis: -
  - How much and what composition of capital the bank considers it should hold as compared with its accounting capital, its regulatory capital adequacy requirement under the *AMBD Capital Adequacy Framework* and its economic capital requirement;

- The adequacy of the bank’s risk management against the backdrop of the bank’s risk profile and financial performance;
- v. A summary of the financial position of the business, including the strategic position of the bank, its balance sheet strength, and future profitability;
  - vi. Brief descriptions of the capital and dividend plan; how the bank intends to manage capital going forward and for what purposes;
  - vii. Commentary on the most material risks, why the level of risk is acceptable or, if it is not, what mitigating actions are planned;
  - viii. Commentary on key issues where further analysis and decisions are required; and
  - ix. Who has carried out the assessment, how it has been challenged, and who has approved it.

## **2. BACKGROUND**

This section would cover the relevant organisational structure and business lines, and historical financial data for the bank (e.g., group structure (legal and operational), operating profit, profit before tax, profit after tax, dividends, equity, capital resources held and as compared with regulatory requirements, total loans, total deposits, total assets, etc., and any conclusions that can be drawn from trends in the data which may have implications for the bank’s future).

## **3. CAPITAL ADEQUACY**

This section could start with a description of the risk appetite used in the ICAAP. It is vital for the Authority to understand whether the bank is presenting its view regarding: (1) the amount of capital required to meet minimum regulatory needs, or (2) the amount of capital that a bank believes it needs to meet its business objectives (e.g., whether the capital required is based on a particular desired credit rating, or includes buffers for strategic purposes, or minimises the chances of breaching regulatory requirements). A description of the methodology used to assess the bank’s capital adequacy should also be included.

The section would then include a detailed review of the capital adequacy of the bank from the perspectives of accounting capital, regulatory capital and economic capital.

The information provided would include: -

### **Timing**

- i. The effective date of the ICAAP calculations together with consideration of any events between this date and the date of submission which has the potential to materially impact the ICAAP calculation, together with their effects and implications; and
- ii. Details of, and rationale for, the time period over which capital has been assessed. The ICAAP must be future-oriented and, at a minimum must project forward at least two years, though ideally it should be up to five years.

### **Risks analyses**

- i. An identification of the key risks to which the bank is exposed, and the most important threats which cause or have the potential to cause the bank to suffer losses. These key risks may include: -
  - credit risk (including credit concentration risk);
  - market risk;
  - interest rate risk in the banking book;
  - liquidity risk;
  - operational risk;
  - compliance risk;
  - strategic/business risk; and
  - reputation risk;
- ii. And for each, an explanation of how the risk has been assessed and, where appropriate, the quantitative results of that assessment;
- iii. Where relevant, a comparison of the latter assessment with the results of the assessment under the *AMBD Capital Adequacy Framework* (specifically for credit risk, market risk, and operational risk);
- iv. A clear articulation of the bank's risk appetite by risk category and by business line;
- v. Where relevant, an explanation of any other methods apart from capital used to mitigate the risks.

The discussion here would make clear which additional risks the bank considers material to its operation and, thus, would warrant additional capital on top of that required for credit risk, market risk, and operational risk under the *AMBD Capital Adequacy Framework*.

### **Methodology and assumptions**

A description of how assessments for each of the major risks have been approached and the main assumptions made.

At a minimum, the Authority expects banks to base their ICAAP on the results of the capital adequacy requirement under the *AMBD Capital Adequacy Framework* and additional risks, where applicable, should be assessed separately.

### **Capital transferability**

Details of any restrictions that may curtail management's ability to transfer capital into or out of the business(es) covered, for example, contractual, commercial, regulatory or statutory restrictions that apply.

#### 4. CURRENT AND PROJECTED FINANCIAL AND CAPITAL POSITIONS

This section would explain the current and expected changes to the business profile of the bank, the environment in which it expects to operate, its projected business plans (by appropriate lines of business), and projected financial position for, say three to five years.

The starting balance sheet and date as of which the assessment is carried out must be presented. And stated.

The projected financial position might consider both the projected capital available and projected capital resource requirements to support strategic/business initiatives. These might then provide a baseline against which adverse scenarios (*see Capital Management below*) might be compared.

Given these business plans, this section would also discuss the bank's assessment on whether additional capital is necessary on top of that assessed to cover its existing risk exposures, as well as future planned sources of capital.

#### 5. CAPITAL MANAGEMENT

This section would explain how a bank would be affected by an economic recession or downswings in the business or market relevant to its activities. The Authority is interested in how a bank would manage its business and capital to survive a recession/market disruption while meeting minimum regulatory standards. The analysis would include financial projections forward for, say, three to five years based on business plans and solvency calculations. Likewise, a bank should disclose here the key assumptions and other factors that would have significant impact on its financial condition, in conducting scenario analyses/stress testing.

Typical scenarios would include how an economic downturn / market disruption would affect:

- i. the bank's capital resources and future earnings; and
- ii. the bank's capital adequacy requirement under the AMBD's Capital Adequacy Framework taking into account future changes in its projected balance sheet.

It would also be helpful if these projections showed separately the effects of potential management actions to change the bank's business strategy and the implementation of contingency plans.

In addition, banks are encouraged to include an assessment of any other capital planning actions that would be necessary to enable it to continue to meet its regulatory capital requirements throughout a recession/market disruption, such as new capital injections from related companies or new share issues.

Given the projected capital needs arising from an economic recession or business / market downswings, this section would also discuss the bank's assessment on whether additional capital is necessary on top of that assessed to cover existing risk exposures and business plans.

## **6. CHALLENGING OF AND ADOPTING THE ICAAP**

This section would describe the extent of challenging and testing of the ICAAP. Banks should describe the review and sign-off procedures used by senior management and the board. It might also be helpful if a copy of any relevant report to senior management or the board and their response were attached.

Details of the reliance placed on any external suppliers would also be detailed here, e.g. for generating economic scenarios.

In addition, a copy of any report obtained from an external reviewer or internal audit would also be included.

## **7. USE OF THE ICAAP WITHIN THE BANK**

This section would describe the extent to which capital management is embedded within the bank, including the extent and use of scenario analysis and/or stress testing within the bank's capital management policy, e.g. in business decisions (e.g. expansion plans) and budgets, or in allocating capital to business units, or in individual credit decision process.

A bank must include a statement of the actual operating philosophy on capital management and how this links to the ICAAP. For instance, differences in risk appetite used in the ICAAP as compared to that used for business decisions must be highlighted and discussed.

Lastly, it would be helpful if details on any anticipated future refinements within the bank's ICAAP (highlighting those aspects which are work-in-progress), as well as any other information that would help the Authority review the bank's ICAAP could be provided.

- **END OF ANNEXURE A** -