PRUDENTIAL STANDARD ON INTERNAL CAPITAL ADEQUACY ASSESSMENT PROCESS (ICAAP) FOR INSTITUTIONS LICENSED TO CONDUCT BANKING BUSINESS UNDER THE BANKING ACT, 2015

EASTERN CARIBBEAN CENTRAL BANK

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LIST OF ACRONYMS

CRM	Credit Risk Mitigation
CRMF	Credit Risk Management Framework
ICAAP	Internal Capital Adequacy Assessment Process
ORMF	Operational Risk Management Framework
LFI	Licensed Financial Institution
RAROC	Risk-adjusted return on capital
RAS	Risk Appetite Statement
RBS	Risk Based Supervision
ROE	Return measures e.g. return on equity
RORAC	Return on risk-adjusted capital
SREP	Supervisory Review and Evaluation Process

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1.0 INTRODUCTION

1.1 AUTHORITY

This prudential standard (Standard) is issued by the Eastern Caribbean Central Bank (Central Bank), in exercise of the powers conferred on it by Section 184 of the Banking Act, 2015[1] (hereinafter referred to as the Act).

1.2 COMMENCEMENT

This Standard shall come into effect on 1st day of January, 2023.

1.3 OVERVIEW

The Basel II/III framework is predicated on three mutually reinforcing pillars - minimum capital requirements (Pillar 1), supervisory review (Pillar 2), and market discipline (Pillar 3). Pillar 2 reinforces Pillar 1[2] by addressing risks not considered under Pillar 1I and certain specific issues not considered within Pillar 1 risks[3]. It requires licensed financial institutions (LFIs) to have adequate capital to support all present material risks and to maintain adequate capital levels over time, taking into account their business strategy and future business environment. In addition, it encourages LFIs to address weaknesses in current risk management by using improved risk management techniques to monitor and manage their risks.

Pillar II is based on four interlocking principles:

1. **Principle 1:** Banks should have a process for assessing their overall capital adequacy in relation to their risk profile and a strategy for maintaining their

[1] Section 183 of the Banking Act of Anguilla, No 6 of 2015
[2] Pillar 1 sets minimum requirements for capital to cover credit, market and operational risks.
[3] Examples include credit concentration risk and residual risk

capital levels. This includes the development of an Internal Capital Adequacy Assessment Process (ICAAP).

2. **Principle 2:** Supervisors should 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. Supervisors should take appropriate supervisory action if they are not satisfied with the results of this process.

3. **Principle 3:** Supervisors should expect banks to operate above the minimum regulatory capital ratios and should have the ability to require banks to hold capital in excess of the minimum.

4. **Principle 4:** Supervisors should seek to 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 should require rapid remedial action if capital is not maintained or restored.

1.4 PURPOSE

This standard is intended to help LFIs strengthen their risk management capabilities and their ICAAP. An LFI's ICAAP should be tailored to its operations and may not include some of the areas discussed within this standard or may include other areas that may be relevant to their operations. As such, the ICAAP should be guided by the principle of proportionality, commensurate with the nature, scope, scale and the degree of complexity of an LFI's business activities. This will contribute to a more consistent and effective supervision of capital adequacy through the Supervisory Review and Evaluation Process (SREP), that is intended to:

a) Address the LFI's responsibility for formulating and implementing an adequate ICAAP[4] towards setting internal capital targets and triggers and developing strategies to achieve those internal targets, consistent with its business plans, risk profile and current operating environment.

b) Serve as a general guide to the development and implementation of an LFI's ICAAP which should be tailored to its operations.

c) Ensure that LFIs maintain a level of capital that is consistent with the risks to which they are exposed arising from their business activities.

1.5 SCOPE OF APPLICATION

This Standard applies to all LFIs that are incorporated in the Eastern Caribbean Currency Union (ECCU) and are licensed under the Banking Act to which the Central Bank's Basel II/III capital framework applies. The Central Bank recognises that some LFIs may be subsidiaries of larger banking groups and the ICAAP may be led and/or managed by their Head Office. Nevertheless, the Central Bank expects the management of the local LFI to fully understand how the Head Office's global capital allocation process is accounting for the LFI and how risk management at the local level fits into the Group's ICAAP.

2.0 THE INTERNAL CAPITAL ADEQUACY PROCESS (ICAAP)

2.1 DEFINITION OF ICAAP

The ICAAP is a formal internal process through which an LFI, on an ongoing basis, adequately identifies, measures, aggregates and monitors its material present and future risks, taking into account the business environment and with a forward-looking view to guarantee the adequacy of capital for it present and future operations.

The level of complexity and sophistication within an ICAAP should depend on the nature of an LFI's business operations. Some LFIs may adopt a sophisticated economic

[4] Based on Basel Committee on Banking Supervision´s: "International Convergence of Capital Measurement and Capital Standards - A Revised Framework", 2004 (rev. June 2006) and "Enhancements to the Basel II Framework", June 2009.

capital model in formulating their ICAAP, while for others, the ICAAP will more likely be derived from their Pillar I calculation, together with appropriate capital add-ons to cover other material risks. In each case, it must be clear to the Central Bank that the LFI has adequately considered and understood all of its material risks.

The ICAAP should produce an appropriate and realistic result in the sense of the internal assessment of risk-based capital assessment and the internal capital requirements. The LFI should be able to satisfactorily document and explain to the Central Bank the similarities and differences between its internal assessment of risk-based capital requirements and the minimum capital requirements. For example, the total amount of capital the LFI needs to satisfy shareholder and market expectations – (such as underpinning its rating/share price may differ from the Central Bank's specific depositor protection consideration.

2.2 CHARACTERISTICS OF A SOUND ICAAP

A comprehensive ICAAP (**see Appendix I**) is a vital component of a strong risk management process. A sound and effective ICAAP should include at a minimum, the following six components:

i. Board and Senior Management Oversight;
ii. Comprehensive Assessment of Risks;
iii. Stress Testing;
iv. Sound Capital Assessment and Planning;
v. Monitoring and Reporting; and
vi. Internal Control Review.

2.2.1 BOARD AND SENIOR MANAGEMENT OVERSIGHT

2.2.1.1 BOARD RESPONSIBILITY

The board of directors (board) has the responsibility of ensuring that management establishes an adequate ICAAP including an appropriate control environment or high level governance framework, underpinned by written policies and procedures. The board should:

i. Develop a risk appetite framework[5] including a risk appetite statement ***(see Appendix II*** for some of the minimum features) to set the LFI's tolerance for risks and ensure that the institution's strategies and decisions align with the stated risk appetite and that at least on an annual basis, review the risk appetite and risk tolerance levels.
ii. Ensure that management establishes an adequate ICAAP framework to assess the various risks and monitor compliance with internal controls and policies and procedures;
iii. Receive regular and timely reviews of reports on the nature and level of all risk exposure and their relation to capital levels;
iv. Ensure that the ICAAP forms an integral part of the risk management process and the decision-making culture of the LFI;
v. Review and approve the ICAAP, the procedures for its preparation and all related policies;
vi. Review regular and timely reports on the nature and level of all risk exposure and their relation to capital levels;
vii. Understand and acknowledge that risk measurements will include a level of uncertainty;
viii. Ensure that the results of the ICAAP form part of the ongoing management of the LFI's business and influence its strategic planning and risk management;
ix. Ensure that management effectively communicates the ICAAP's results throughout the organisation; and
x. Review the ICAAP at least annually, or as often as deemed necessary to ensure adequate capital coverage of the risks to which the LFI is or could be exposed. For example, this includes whenever material changes in the LFI's risk profile or business environment become evident.

[5] Financial Stability Board (FSB), *Principles for an effective risk appetite framework*, November 2013.

2.2.1.2 SENIOR MANAGEMENT RESPONSIBILITY

The responsibility for the definition, design and ongoing development of the ICAAP should reside with senior management. Additionally, senior management should develop for the board's approval, a sound risk management framework, which ensures a comprehensive assessment of all risks to which the LFI is exposed. This framework should also integrate the LFI's assessment of risk to determine internal capital needs. Senior management should help the board ensure that the formality and sophistication of the risk management processes are appropriate to the LFI's risk profile, size, complexity and business plan.

Throughout these processes, senior management must establish clear and transparent reporting lines and define corresponding responsibilities. Specifically, senior managers should:

i. Define, together with the board, corporate objectives and risk strategies, the LFI's risk profile, and establish corresponding procedures and processes and supporting documentation;
ii. Define strategies and procedures for the setting of limits and adherence to capital requirements;
iii. Ensure that there is adequate capital to support its risks beyond the core minimum requirements.
iv. Ensure that there are adequate systems for measuring, assessing and reporting on the size, composition and quality of exposures on an LFI wide basis across all risk types, products and counterparties;
v. Establish procedures for the regular and independent validation and testing of any models used to measure components of risk;
vi. Report to the board in a timely manner, the nature and level of all risk exposures and their relation to capital levels;
vii. Ensure dissemination of information and procedures on the ICAAP to relevant staff;
viii. Establish suitable internal control systems and reporting structures and ICAAP supporting documentation to support the ICAAP;

ix. Ensure that employees are trained and well equipped to perform their duties; and
x. Ensure that there is a regular (at least annually) review of systems, procedures and processes that support the ICAAP and that adaptation is carried out as necessary.

Overall, senior management is responsible for integrating capital planning and capital management into the LFI's risk-management culture and approach.

2.2.2 COMPREHENSIVE ASSESSMENT OF RISKS

The ICAAP should address all material risks faced by the LFI. Adequate explanations to justify the conclusions regarding the materiality of risks should be provided (including explanations for risks identified as immaterial). The ICAAP should also consider any additional capital that may be required for the risks identified having regard to the LFI's risk management and mitigation strategies.

Specifically, the ICAAP should explicitly address risks included under the minimum regulatory capital requirements (i.e. credit, market and operational risks under Pillar 1) as well as risks not captured (or not adequately captured) under Pillar 1. For example, external risks arising from business cycle effects and the macroeconomic environment should also be considered. The techniques used in assessing material risks should be commensurate with the nature, scope and complexity of the LFI's activities. LFIs must demonstrate how they combine their risk measurement approaches to arrive at the overall internal capital for the respective risks.

The following sections provide guidance on material risks that the Central Bank expects LFIs to address in their ICAAP, including credit risk, market risk, operational risk, liquidity risk, interest rate risk in the banking book and credit concentration risk. LFIs are also expected to:

- Include any other material risks to which they are exposed;
- Be mindful of the capital adequacy effects of concentrations which may arise within each risk type; and

- Refer to the relevant prudential standard(s) pertaining to each risk type.

2.2.2.1 CREDIT RISK

To achieve and maintain effective credit risk management, an LFI should develop and implement a comprehensive credit risk management framework (CRMF) in accordance with its credit risk strategy. The board of directors, management and staff of the LFI should be aware of and understand their respective responsibilities within the CRMF.

An effective CRMF includes the implementation of clearly defined credit policies and procedures to facilitate the identification and quantification of risks inherent in an institution's lending and investment activities:

- The credit policy should be formally established in writing and approved by the board of directors, and should clearly set out the parameters under which credit risk is to be controlled; and
- The policy document should be supported by procedures that clearly define how the roles, responsibilities and objectives outlined in the policy are to be executed.

The following should be noted:

a. This area of the ICAAP is partly addressed through the regulatory minimum capital charge determined by Pillar 1 (and aided by robust internal limit-setting and monitoring procedures).

b. LFIs should have methodologies that enable them to assess the credit risk of exposures to individual borrowers or counterparties as well as at the portfolio level.

c. The credit review of capital adequacy should cover (where relevant) the following four areas:

    i. Risk rating systems;
    ii. Portfolio analysis/aggregation;

iii. Large exposures and risk concentrations; and
iv. Securitisation and complex structured instruments.

d. Internal risk ratings are an important tool in monitoring credit risk. The internal risk ratings must support the identification and measurement of risk from all credit exposures, as well as being integrated into the overall analysis of credit risk and capital adequacy of the financial institution.

e. The credit review process must be comprehensive and, at a minimum, have the ability to:

i. Generate detailed internal ratings for all credit exposures;
ii. An adequate level of loan loss reserves and provisions for losses in other assets held;
iii. Identify credit weakness at the portfolio level, especially large exposures and credit risk concentrations; and
iv. Consider the risks involved in securitisation programmes and complex credit derivative transactions.

f. The sophistication of the methodologies used to quantify credit risk should be appropriate to the scope and complexity of the LFI's credit risk taking activities. Less complex credit risk taking activities may incorporate a variety of methodologies but should, at minimum, take into consideration:

i. Historical loss experience;
ii. Forecasted economic conditions;
iii. Future business and competitive environment;
iv. attributes specific to a defined group of borrowers; and
v. Other characteristics directly affecting the collectability of a pool or portfolio of loans.

For additional guidance, LFIs should refer to the prudential standard on *Credit Risk Management and Credit Underwriting for Institutions Licensed to Conduct Banking Business under the Banking Act.*

2.2.2.2 CONCENTRATION RISK

a. LFIs should explicitly consider the extent of their credit risk concentrations in their assessment of capital adequacy under Pillar 2. The assessment of concentration risk in an institution's ICAAP should not be a mechanical process, but one in which each LFI determines, in the context on its business model, its own specific vulnerabilities. An appropriate level of capital for risk concentrations should also be incorporated in the institution's ICAAP.

b. A risk concentration is any single exposure or group of similar exposures (e.g. to the same borrower or including protection providers, geographic area, industry or other factors) with the potential to produce:

    i. Losses large enough (relative to an institution's earnings, capital, total assets or overall risk level) to threaten the LFI's creditworthiness or ability to maintain its core operations; or
    ii. A material change in the institution's risk profile.

c. LFIs should be able to identify and aggregate similar risk exposures across their institution, including across legal entities, asset types (e.g. loans, investments and other structured products), and risk areas (e.g. the trading and geographic regions). They should carefully assess the various sources of credit concentration risk.

    The typical situations in which risk concentrations arise include:

    i. Exposures to a single counterparty, borrower or group of connected counterparties or borrowers;

ii. Exposures to industry or economic sectors, including exposures to regulated and non-regulated financial institutions, hedge funds and private equity firms;
iii. Geographical regions;
iv. Exposures arising from credit risk mitigation techniques, including exposure to similar collateral types or to a single or closely related credit protection provider;
v. Trading exposures/market risk;
vi. Exposures to counterparties (e.g. hedge funds and hedge counterparties) through the execution or processing of transactions (either product or service);
vii. Funding sources;
viii. Assets that are held the banking book or trading book, such as loans, investments and other structured products; and
ix. Off-balance sheet exposures, including guarantees, liquidity lines and other commitments.

2.2.2.3 CREDIT RISK MITIGATION

LFI are required to have credit risk mitigation (CRM) techniques in place which are approved by the board. These may include altering business strategies, reducing limits or increasing capital buffers in line with the desired risk profile. LFIs must also consider possible concentrations that may arise as a result of employing risk mitigation techniques.

While LFIs use CRM techniques to reduce their credit risk, these techniques potentially give rise to residual risks that may render overall risk reduction less effective. Examples of these risks include legal risk and documentation risk. In assessing their CRM strategies, LFIs should ensure that these residual risks are measured, monitored and reported to senior management and board. A capital charge should also be applied.

2.2.2.4 OPERATIONAL RISK

Sound internal governance forms the foundation of an effective operational risk management framework (ORMF), which often relies on three lines of defense: business line, risk management and an independent review.

LFIs are required to develop, implement and maintain an ORMF. The framework developed would depend on the nature, size and complexity of the activities of the LFI and its risk profile. Board and senior management oversight, internal reporting controls and contingency planning are critical elements of an effective framework.

Board and senior management are responsible for developing a risk management environment in the institution. While the board is ultimately responsible for the oversight of the LFI's management of operational risk, senior management has responsibility for implementing the board-approved ORMF.

The following should be noted:

a. 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. LFIs should therefore develop a robust framework for managing operational risk and evaluate the adequacy of capital given this framework.

b. The framework must cover the LFI's appetite and tolerance for operational risk, as specified through the policies for managing this risk. This would include the extent and manner in which operational risk is transferred outside the institution, for example, by insurance. It should also include policies outlining the LFI's approach to identifying, assessing, monitoring and controlling or mitigating the risk.

c. LFIs should be able to assess the potential risks resulting from inadequate or failed internal processes, people, and systems, as well as from external events (for example cyber-attacks). This assessment should include the effects of extreme events and shocks relating to operational risk. Events could include a sudden increase in failed processes across business units or a significant incidence of failed internal controls.

d. It must be noted that the regulatory capital for operational risk in the ECCU, is calculated using the Basic Indicator Approach (BIA), a very simple proxy-based approach that does not guarantee that the regulatory capital adequately reflects the operational risks capital needs of the LFI. Therefore, LFIs should evaluate their operational risks capital independently to determine its sufficiency. The Central Bank intends to introduce a more risk sensitive approach at an appropriate time.

For additional guidance, LFIs should refer to the *Prudential Standard for the Management of Operational Risks for Institutions Licensed under the Banking Act 2015*.

2.2.2.5 MARKET RISK

a. LFIs should have methodologies that enable them to assess and actively manage all material market risks, wherever they arise throughout the institution (i.e. positions, trading desk, business line or LFI level), including the treatment of less liquid positions in the trading book.

b. LFIs should identify risks in trading activities resulting from a movement in market prices. This determination should consider factors such as illiquidity of instruments, concentrated positions, one-way markets, non-linear/deep out-of-the money positions, and the potential for significant shifts in correlations. Exercises that incorporate extreme events and shocks should also be tailored to capture key portfolio vulnerabilities to the relevant market developments.

c. Concentration risk should be pro-actively managed and assessed and concentrated positions should be routinely reported to senior management and board.

d. LFIs should also have clear and robust governance structures for the production, assignment and verification of financial instrument valuations. Policies should ensure that the approvals of all valuation methodologies are well documented. In addition, policies and procedures should set out the range of acceptable practices for the initial pricing, marking-to-market model, valuation adjustments and periodic independent revaluation.

e. In assessing whether an information or price source is reliable, a financial institution should 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 includes the relevant participants in the market;
   iv. The timeliness 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 issued by the institution.

f. Stress tests applied by an LFI and, in particular, the calibration of those tests (e.g. the parameters of the shocks or types of events considered) should be reconciled to a clear statement setting out the premise upon which the institution's internal capital assessment is based.

g. The market shocks applied in stress tests must reflect the nature of portfolios and the time it could take to hedge out or manage risks under severe market conditions.

For additional guidance, LFIs should refer to the *Prudential Standard on Market Risk Management for Institutions Licensed under the Banking Act 2015*[6].

2.2.2.6 LIQUIDITY RISK

Liquidity is crucial to the ongoing viability of a financial institution. The board and senior management should consider the relationship between liquidity and capital since liquidity risk can impact capital adequacy which, in turn, can aggravate an LFI's liquidity profile. For example, LFIs' capital positions can affect their ability to obtain liquidity, especially in a crisis. Each LFI must therefore have adequate systems in place for measuring, monitoring, and controlling liquidity risk. LFIs should evaluate the adequacy of capital given their own liquidity profile and the liquidity of the markets in which they operate.

The ICAAP must reflect the importance of assessing the potential impact of liquidity risk on an LFI's capital adequacy. 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 LFI and reflected in the strategy and policies that senior management sets to manage liquidity risk. LFIs may also 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.

LFIs may utilise early warning indicators to identify the emergence of increased risk or vulnerabilities in its liquidity position or funding needs. LFIs must have the ability to control liquidity risk exposure and funding needs, regardless of their organisation structure, within and across legal entities, business lines, and currencies, taking into account any legal, regulatory and operational limitations to the transferability of liquidity. Intra-day liquidity risks must be considered as a crucial part of an LFI's

[6] The ECCB will issue this prudential standard to support its implementation of pillar 2.

liquidity risk management. An LFI must also actively manage its collateral positions and have the ability to calculate all of its collateral positions.

LFIs must perform stress tests or scenario analyses on a regular basis in order to identify and quantify their exposures to possible future liquidity stresses, and to analyse possible impacts on the institutions' cash flow, liquidity positions, profitability, and solvency. For additional guidance, LFIs should refer to the *Guidelines on Liquidity Risk Management for Institutions Licensed Under the Banking Act*[7].

2.2.2.7 INTEREST RATE RISK IN THE BANKING BOOK (IRRBB)

a. LFI must be familiar with all elements of IRRBB, actively identify their IRRBB exposures and take appropriate steps to measure, monitor and control it. In particular, the measurement process should include all material interest rate positions of the LFI 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 should also have well-documented assumptions and techniques.

b. LFIs must identify the IRRBB inherent in all products and activities, and ensure that these are subject to adequate procedures and controls. The board must approve significant hedging or risk management initiatives, before implementation. The management of IRRBB should be integrated within the LFI's broad risk management framework and aligned with its business planning and budgeting activities[8].

c. The board and senior management are responsible for understanding the nature and the level of the IRRBB exposure of the LFI. The board should approve broad

[7] Also, refer to BCBS Principles for Sound Liquidity Risk Management and Supervision 2008

5 Details on the risk management framework for IRRBB will be included in the Central Bank's "Guideline for Interest Rate Risk in the Banking Book"

business strategies as well as overall policies with respect to IRRBB. The IRRBB policies should be documented and should include clear guidance regarding the acceptable level of IRRBB, given the LFI's business strategies.

d. In measuring IRRBB, LFIs should take into account a wide and appropriate range of interest rate shock and stress scenarios. An LFI's ability to generate stable earnings sufficient to maintain its normal business operations should also be considered.

e. LFIs are responsible for determining the optimal level of capital to support their operations and should ensure that it is sufficient to cover IRRBB and its related risks.

f. An LFI should be able to support its assumptions about the behavioural characteristics of non-maturity deposits and other assets and liabilities, especially those exposures characterised by embedded optionality. Given uncertainty in such assumptions, stress testing should be used in the analysis of interest rate risks.

2.2.2.8 OTHER RISKS CONSIDERATIONS

The Central Bank requires the internal capital allocation process of LFIs to cover all risk, which, though not identified above, are material for the institution for example, strategic risk, reputational risk, settlement risk, and residual risk. Although additional risks such as strategic and reputational risk are not easily measurable, LFIs should develop techniques for evaluating and managing all aspects of their risks. ***Appendix III*** provides additional information on other risks.

3.0 STRESS TESTING[9]

3.1 REQUIREMENT FOR STRESS TESTING

Stress tests are forward-looking simulation exercises conducted to evaluate the impact of severe but plausible adverse scenarios (which reflect stressful or adverse

The ECCB's Prudential Standard on Stress Testing provides further guidance on stress tests.

macroeconomic and financial developments), on the resilience of financial institutions or the entire financial system. Additionally, the term “stress testing” not only refers to the mechanics of applying specific individual tests, but also to the wider environment within which the tests are developed, evaluated and used within the decision-making process.

As a forward-looking analytical technique, stress tests should be undertaken to:

i. Improve the LFI’s understanding of its vulnerabilities under adverse conditions; and
ii. Increase the LFI’s anticipation of possible losses if for example, an identified economic downturn or a risk event materialises.

Stress testing also supplements other risk management approaches and measures. In particular, it plays an important role in:

i. Providing forward looking assessments of risk;
ii. Overcoming limitations of models and historical data;
iii. Feeding into capital and liquidity planning procedures;
iv. Informing the setting of an institution’s risk tolerance;
v. Addressing existing or potential, institution-wide risk concentrations; and
vi. Facilitating the development of risk mitigation or contingency plans across a range of stressed conditions.

LFIs are required to conduct stress tests on a regular basis, to identify and quantify their exposures to possible future stress scenarios and analyse possible impacts on their cash flows, liquidity positions, profitability and solvency.

The most common stress testing techniques are:

a) **Sensitivity analysis:** this provides only first-level direct effects (and not indirect effects) of the impact on a portfolio or a business unit of a move in a particular risk factor or a limited set of risk factors at a time. For example, following a rating downgrade, the first-level direct effects are an increase of the probability of default and capital requirements. This may trigger higher margin call as an indirect effect. Sensitivity analysis does not rely on scenarios.

b) **Scenario analysis:** this allows banks to simultaneously stress a set of risk factors (for example, equity prices, foreign exchange rates and interest rates), reflecting an extreme but plausible event that may occur in the foreseeable future. Scenario stress testing is generally broken down into two categories:

   i. Reverse stress tests which start with the identification of a defined outcome (for example, a bank 'failure or likely to fail' situation or a substantial loss) and then work backwards to determine the external shocks and related scenarios that would trigger the defined outcome; and

   ii. Direct stress tests which start from a scenario and compute its impact. It follows either a top-down (supervisor-run) approach[10] or bottom-up (bank-run) approach[11].

The results of stress tests must be discussed thoroughly by the board and senior management, and based on this discussion, must form the basis for taking remedial or mitigating actions to limit the LFI'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 LFI'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.

[10] This enables supervisors to perform a comparative assessment between banks under a common and uniform framework but it neglects the idiosyncratic aspects of banks as it is based on less granular data and models.
[11] This provides a more granular view of the relationship between the bank's own risk factors and macroeconomic or financial parameters

The capital planning process should incorporate rigorous, forward looking stress testing that identifies possible events or changes in market conditions that could adversely impact the institution. In particular, stress testing alerts management to adverse unexpected outcomes related to a broad variety of risks and indicates how much capital might be needed to absorb losses should large shocks occur. The board is required to review the stress testing results periodically and take them into account in the capital management process.

The Central Bank expects LFIs to have in place procedures to undertake, review and, where appropriate, react to the results of rigorous, forward-looking stress testing that identifies possible events or cyclical changes in market conditions that could adversely impact LFIs' capital, earnings, liquidity or asset values.

4.0 SOUND CAPITAL ASSESSMENT AND PLANNING

Capital assessment and planning is a necessary complement to a robust regulatory framework. Sound capital planning is critical for determining the prudent amount, type and composition of capital that is consistent with a long-term strategy that allows for pursuit of business objectives while also withstanding a stress event.

LFIs should have a system in place for effective capital assessment that is sufficiently comprehensive, appropriately forward-looking and adequately formalized. Among other things, the capital plan should take into account the strategic objectives/ plans of the institution and be appropriate to the nature of risks posed by its business activities and operating environment.

A sound capital assessment and planning process should enable the board and senior management to make informed decisions on the appropriate amount and composition of capital needed to support the LFI's business strategies across a range of potential scenarios and outcomes. There are four fundamental components of a sound capital planning process that should be instituted:

i. Governance and internal controls;

ii. Capital policy and risk capture;

iii. Strategic and forward-looking view; and

iv. A management framework for setting and preserving capital.

Each of the foregoing components is discussed below:

4.1 GOVERNANCE AND INTERNAL CONTROLS

a) LFIs should have in place a formalised capital planning process that is administered through an effective governance structure.

b) An LFI's capital planning process should produce an internally consistent and coherent view of its current and future capital needs.

c) An LFI's capital planning process should reflect the input of different skillsets, including but not limited to staff from business, risk, finance and treasury departments. There should also be a strong link between the capital planning, budgeting and strategic planning processes.

d) LFIs must have a formal process in place to identify situations where competing assumptions are made. In this context, differences in strategic planning and capital allocation across the institution should be escalated for discussion and approval by senior management and, where appropriate, by the board.

e) Capital plans and their underlying processes and models should be subject to regular independent validation.

f) Sound practice typically involves a management committee or similar body that works under the auspices of the board and guides and reviews efforts related to capital planning.

g) The board should establish the principles that underpin the capital planning process including the forward strategy for the institution, an expression of risk appetite, and a perspective on striking the right balance between reinvesting capital in the operations and providing returns to shareholders.

h) Capital plans should be approved at least annually by the board or one or more of its committees.

4.2 CAPITAL POLICY AND RISK CAPTURE

a) LFIs should have a written capital policy that is developed by the senior management and approved by the board. The capital policy should specify the principles that management will follow in making decisions about how to deploy capital.

b) The capital policy should reference a suite of capital and performance-related metrics against which management monitors the institution including:

   i. Regulatory capital measures e.g. the capital adequacy ratio (CAR) and common equity Tier 1 (CET1) ratio; and

   ii. Return measures e.g. return on equity (ROE), return on risk-adjusted capital (RORAC) and risk-adjusted return on capital (RAROC).

c) LFIs should identify triggers and limits for every metric specified in the capital policy. Capital policies should incorporate minimum thresholds that are monitored by managers to ensure that the LFI remains strong.

d) A monitoring framework should be put in place and complemented by a clear and transparent formal escalation protocol for situations when a trigger or limit is approached and/or breached, at which point a timely decision needs to be taken.

e) An important input to a capital policy is an expression of risk tolerance/appetite that should be approved and renewed annually by the board.

4.3. STRATEGIC AND FORWARD-LOOKING VIEW

i. The ICAAP should take into account the LFI's strategic plans and how they relate to macroeconomic factors. The LFI should develop internal strategies which incorporate factors such as loan growth expectations, future sources and use of funds, and similar factors such as (pro-cyclicality).

a) LFIs should incorporate rigorous, sufficiently severe but plausible, forward-looking stress testing in their capital planning process as these techniques provide a forward view on the sufficiency of the capital base of an LFI.

b) An effective capital planning process requires an LFI to assess the risks to which it is exposed as well as to consider the potential impact on earnings and capital from an assumed economic downturn. Stress testing therefore needs to be an integral component of the capital planning process.

c) Stress testing provide a view as to how the capitalisation of the LFI could be jeopardised if there were a dramatic institution-specific or economic change. Without such a component, a capital plan would be highly vulnerable, and thus any actions pursuant to it may not adequately insulate the institution against future adverse developments. Stress testing therefore needs to be an integral component of the capital planning process (see Section 5 on Stress testing).

d) Stress testing should incorporate all relevant risks to the LFI and conservatively capture and account for changes in key risk factors across all portfolios and businesses under appropriately severe forward-looking scenarios. In addition, the institution should conduct stress testing on a consistent basis and in ad hoc scenarios outside the normal stress testing procedures.

4.4 MANAGEMENT FRAMEWORK FOR SETTING AND PRESERVING CAPITAL

4.4.1 Setting the Target Capital Level

a) A key component of an ICAAP is the setting of target levels of capital that are commensurate with the LFI's risk profile and control environment including its external rating, market reputation and strategic objectives. An LFI should therefore set its capital targets based on internal assessments of its capital needs[12]. Both the quantity and quality of capital should be assessed.

b) An LFI should consider both bottom-up (for example, by summing capital amounts for individual risks) and top-down (for example, via stress testing of the overall capital position) perspectives on the adequacy and composition of its capital.

c) The board should ensure alignment of the capital targets set with the institution's risk appetite. In addition, the following should be considered:

   i. Regulatory capital requirements;
   ii. Internal assessments of capital needs, including those arising from the institution's business plans and strategy;
   iii. The likely volatility of profit and the capital surplus;
   iv. The dividend policy;
   v. Where relevant, external credit ratings;
   vi. The expected time horizon for achieving capital targets; and
   vii. Access to additional capital.

d) The strategic plan should clearly outline the LFI's capital needs, anticipated capital expenditures, desirable capital level, and external capital sources. Senior management and the board should view capital planning as a crucial element in being able to achieve the desired strategic objectives.

e) The strategic plan should clearly outline the LFI's capital needs,

[12] The target capital should not be less than the regulatory capital requirement under Pillar 1.

anticipated capital expenditures, desirable capital level, and external capital sources. Senior management and the board should view capital planning as a crucial element in being able to achieve the desired strategic objectives.

f) It is important that actions to maintain capital are clearly defined in advance and that the management process allows for plans to be updated swiftly to allow for better decision-making in changing circumstances.

g) For a capital planning process to be meaningful, the board and senior management should rely on it. In particular, the process should provide information on the degree to which an institution's business strategy and capital position may be vulnerable to unexpected changes in conditions.

h) The board and senior management of an LFI should ensure that the capital policy and associated monitoring and escalation protocols remain relevant alongside an appropriate risk reporting and stress testing framework.

i) Board and senior management are also responsible for prioritising and quantifying the capital actions available to them to cushion against unexpected events which may include reductions in or cessation of common stock dividends, equity raises and/or balance sheet reductions (for example, monetising business units or reducing credit origination).

j) LFIs should ensure that actions to maintain capital are clearly defined in advance. Guiding principles should therefore be developed for determining the appropriateness of particular actions under different scenarios, which take into account Internal relevant considerations, such as economic value added, costs and benefits, and market conditions.

5.0 MONITORING AND REPORTING

The LFI should establish a formal monitoring and reporting mechanism which will enable its board and senior management to regularly monitor risk exposures so that they can assess how the LFI's risk profile is changing and the impact of those changes on the adequacy of capital levels.

Reports should include all material risk exposures, including those that are off-balance sheet to allow the board and senior management 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;

iii. Determine that the LFI holds sufficient capital against the various risks and is in compliance with established capital adequacy goals; and

iv. Assess its future capital requirements based on the LFI's reported risk profile and make necessary adjustments to the LFI's strategic plan accordingly.

The periodicity of risk reporting may vary according to the severity, duration and type of risks. However, LFIs should generate such reports at least on a quarterly basis for all material risks for senior management' review.

5.1 MANAGEMENT INFORMATION SYSTEMS

LFIs may conduct a gap analysis to determine if the current management information systems (MIS) are fit for purpose to meet the requirements of the ICAAP. To enable management to adequately monitor and control material risk exposures and provide the board and other relevant parties with timely and relevant reports on the LFI's risk profile and capital needs, the LFI's MIS should:

a) Be commensurate with its size, complexity and risk profile;
b) Facilitate evaluation of the impact of various economic and financial shocks;
c) Enable risks to be aggregated across business lines, as well as support customised identification of concentrations and emerging risks;
d) Have the capacity to capture limit breaches and be supported by procedures to report and rectify such breaches;

e) Be adaptable and responsive to changes in underlying risk assumptions; and
f) Incorporate multiple perspectives of risk exposure to account for uncertainties in risk measurement.

In some cases, LFIs may be able to rely on existing risk management systems (risk measurement, limit monitoring) to support their ICAAP. However, it may be necessary for some LFIs to invest in expansions and new acquisitions within their MIS, in order to support its ICAAP.

6.0 INTERNAL CONTROL REVIEW

The LFI's systems for assessing and determining capital adequacy for its material risks need to be reviewed, assessed, monitored and tested independently and on a regular basis.

The internal control review involves putting in place an appropriate mechanism of internal and external audits for ensuring the reasonableness of ICAAP and the accuracy of the data and stress scenarios used. The LFI's internal control structure is essential to a sound capital assessment process. Effective control of the capital assessment process includes an independent review and, where appropriate, the involvement of internal or external audits. At least annually, the internal audit and risk and compliance functions should conduct independent reviews of the strategies and processes to:

a) Maintain the ICAAP's integrity, reliability and relevance;
b) Ensure compliance with applicable laws and regulations, the Central Bank's prudential standards and other directives as well as internal policies and procedures; and
c) Ensure that capital coverage reflects the actual risk profile of the LFI.

The LFI's board of directors has a responsibility to ensure that management establishes a system for assessing the various risks, develops a system to relate risk to the LFI's capital level, and establishes a method for monitoring compliance with internal policies. The board should regularly verify whether its system of internal controls is adequate to ensure well-ordered and prudent conduct of business. The LFI should conduct annual reviews of its risk management process to ensure its integrity, accuracy and reasonableness. Key areas that should be reviewed include:

i. The appropriateness of the LFI's capital assessment process given the nature, scope and complexity of its activities;
ii. The identification of large and/or material exposures and risk concentrations;
iii. The accuracy and completeness of data inputs into the LFI's assessment process;
iv. The reasonableness and validity of scenarios used in the assessment process; and
v. Stress testing and analysis of assumptions and inputs.

7.0 GROUP ICAAP

Group risk applies to all subsidiary LFIs that are part of a group established either in the ECCU or in another country. This section relates to the risks that emanate from the relationship that the LFI has with other group entities. LFIs are required to have adequate, sound and appropriate risk management processes and internal control mechanisms for the purpose of assessing and managing its own exposure to group risk, including sound administrative and accounting procedures.

An LFI's ICAAP should take into account the risks to which that LFI is exposed due to its membership in a broader group. These risks include contagion risks, counterparty risks, reputational risks and risks related to operational dependencies such as shared systems, functions and service level arrangements. Assessment of capital resources at a group level will need to have regard to the transferability of capital between group entities in a range of market conditions.

An LFI may make use of a group ICAAP (i.e. the ICAAP produced at the parent level) or components of that ICAAP. However, where this is the case, the ICAAP must adequately identify the risks and capital needs of each LFI within the group. Further, the board of each LFI within the group is still required to ensure that the Group ICAAP is appropriate and meets the minimum regulatory requirements in relation to the LFI.

8.0 DOCUMENTING THE ICAAP

All items covered by the ICAAP should be clearly documented and approved at the board level. The ICAAP's documentation should include methodologies, assumptions, procedures, the risk management processes and responsibilities. The Central Bank has provided a template of an ICAAP document. The LFI's capital plan must also be documented and submitted as an appendix to the ICAAP.

The ICAAP must be transparent throughout the organisation and documentation of its different aspects should be tailored to the relevant target groups throughout the organisational structure. It is therefore advisable to use various levels of detail and explanation of the ICAAP for different levels of responsibility throughout the organisation.

The scope and level of detail of documentation should be proportionate to the size, complexity and risk levels of the LFI. Therefore, management must determine whether varying levels of documentation are necessary to support the type of business operations, which the ICAAP is meant to support. In cases where this kind of documentation structure may be necessary, ***Appendix IV*** gives an indication of the type and depth of documentation that may be required at each level of responsibility within the organisation.

The documented ICAAP should be supported by, at a minimum, the following documents/ processes:

a) Business and strategic plans (including business model);
b) Risk governance and risk management frameworks;
c) Risk appetite statement;
d) Stress-testing framework;
e) Capital plan (including capital restoration strategy);
f) Risk data, including key risk indicators;
g) Details of the information technology systems;
h) Any aggregation methodologies;

i) Risk and compliance reports covering the ICAAP; and
j) Internal audit reports covering the ICAAP.

LFIs should clearly indicate if any of the requested documentation is unavailable and a proposed timeline for submission. Additionally, the LFI's ICAAP and supporting documentation should be appropriately updated as necessary to reflect any significant changes in its strategic policies, business plan, operating environment or other factors that materially affect assumptions or methodologies used in the ICAAP. The LFI should also ensure that new risks to which it is exposed are promptly and properly identified, assessed and incorporated into the ICAAP.

9.0 REGULATORY REPORTING REQUIREMENTS

The board must ensure that the ICAAP report is completed at least once a year and upon any significant change(s) in risk exposure. The template for the ICAAP report format including the ICAAP Submission Summary is provided as a separate document.

The first ICAAP submission date will be determined by the ECCB. Thereafter, the ICAAP will be due **within three (3) months** of the LFI's financial year end, using the most recent financial data.

Notwithstanding the aforementioned schedule for submission of the ICAAP, LFIs should consistently monitor their internal and external environment and business operations to determine issues that may impact the ICAAP and associated capital targets. The Central Bank may request that an LFI submits an updated ICAAP outside of the aforementioned timeline should there be any major change to its business model, operations, markets, or the economy or any other aspect that may significantly impact its risk profile.

10.0 ICAAP AND THE SUPERVISORY REVIEW AND EVALUATION PROCESS (SREP)

The Central Bank will use its SREP (***see Appendix V*** for more details) to determine whether an LFI has an adequate ICAAP. This should include a robust risk management framework, an assessment of all material risks and sufficient capital to support its risk profile (that is, its inherent risks and overall net risk (ONR)), as determined through the ECCB's Risk Based Supervision (RBS) Framework and meets its regulatory capital requirements. Specifically, the Central Bank will use the SREP to evaluate the inherent risk(s) within each significant activity undertaken by an institution and then evaluate the quality of the risk management applied to mitigate these risks.

A well-structured ICAAP document with supporting evidence/documentation enables the board to explain to the Central Bank possible differences in its views on the adequacy of its framework for capital assessment and allocation of capital. The outcome of the SREP will guide the Central Bank's supervisory/regulatory expectations with respect to the Basel capital framework, including the mandatory minimum capital requirements for the next 12-month period.

10.1 THE CENTRAL BANK'S REVIEW AND FEEDBACK PROCESS

The SREP involves both qualitative and quantitative reviews of LFIs' ICAAP as mentioned below:

10.1.1 Qualitative Reviews

The Central Bank will conduct periodic reviews of the effectiveness, completeness and quality of an LFI's ICAAPs and provide each LFI with feedback. The Central Bank will use the review of each ICAAP report as the basis for ongoing discussions with LFIs so that it can promptly take appropriate action if it is dissatisfied with the results of the LFI's own risk assessment and capital allocation. For example, the SREP might highlight errors in an LFI's methodology or assumptions which can significantly impact the resulting capital requirements.

The depth and frequency of the supervisory review of an LFI's ICAAP will reflect the principle of proportionality related to the nature, scale and complexity of its activities, and the risks posed to the Central Bank's supervisory objectives of preserving the safety and soundness of LFIs towards financial stability.

10.1.2 Quantitative Reviews

The SREP will also involve a quantitative review of the LFIs' Pillar 2 inherent risk exposures. However, where risks are not readily quantifiable, the Central Bank will exercise its supervisory judgment, as necessary. This may include qualitative assessments of the LFIs' ability to contain actual risk exposures within prudent, planned levels through effective risk governance, oversight, management and control practices.

Additionally, the SREP will consider other important factors which LFIs need to take into account in arriving at its overall capital targets. These might include:

a) Capital cover for plausible adverse stress scenario outcomes if there are uncertainties on the sufficiency of risk estimates;
b) Additional capital to support planned business growth; and
c) Additional capital to provide a general buffer for contingencies.

The Central Bank will assess both the adequacy of LFIs' capital targets and their strategies and the capacity for achieving and maintaining these targets.

10.2 SREP and Risk Based Supervisory Framework

The Composite Risk Rating (CRR) will help to determine the LFI's target regulatory capital ratio to support its risk profile. Therefore, the SREP will form an integral part of the Central Bank's RBS framework and will leverage any additional information obtained and assessments conducted as part of the wider supervisory regime. This includes off-site reviews, on-site examinations, periodic reporting, discussions with the LFIs' management, media coverage and other research.

The Central Bank's RBS framework produces a CRR to represent its assessment of the safety and soundness of an LFI. The Central Bank establishes this rating by:

1. Identifying and determining the level of all inherent risks present in the significant activities of the LFI;
2. Assessing the effectiveness and adequacy of its oversight and risk management functions; and

3. Assessing the mitigating ability of its capital and earnings.

10.3 The Central Bank's Supervisory Response

It is a serious matter for LFIs to fall below minimum regulatory capital requirements as they will be in breach of the Banking Act 2015/prudential regulations and face corrective supervisory action. The Central Bank will consider a range of actions and issue a Supervisory Letter as appropriate, to advise:

a) Whether the LFI's ICAAP is considered adequate;
b) Reasons for any capital adjustments including limits and a minimum Pillar 1 regulatory capital requirement[13]; and
c) What actions it may take if not satisfied with the results of the LFIs' own risk assessment and capital allocation.

The Central Bank will consider a range of options consistent with BSD's Ladder of Enforcement to address increased/unmitigated risks**,** including but not limited to:

a) Intensifying the monitoring of the LFI and/or reporting scope and frequency;
b) Strengthening of the management framework;
c) Requiring enhancement to existing control procedures or creation of new ones;
d) Requiring changes in strategy for example by requiring certain actions or issuing directives to restrict the scope of the LFI's business (for example, acquisitions;
e) Requiring that the LFI scales down on or ceases to undertake certain activities;
f) Restricting or prohibiting the payment of dividends;
g) Increasing the level of provisions and reserves;
h) Requesting that the LFI prepares and implements a satisfactory capital adequacy restoration plan; and

[13] This ratio will be based on each LFI's risk profile.

i) Mandating that the LFI raises additional capital within a stipulated timeframe.

These actions and the reasons for them, will be discussed with/explained to the LFI's management prior to being implemented.

10.4 Requirement for Additional Capital

The increase in an LFI's capital should not be seen as a permanent solution to address perceived weaknesses. Rather, it should involve more sustainable measures (such as improving systems and controls) which may take some time to implement. In such circumstances, the Central Bank might require an increase in capital as an interim measure to provide additional depositor protection while permanent measures, such as improved risk management systems are instituted to improve the LFI's position. Once these permanent measures are implemented and deemed to be effective by the Central Bank, the interim increase in capital requirements can be discontinued or reduced.

Additionally, where it considers it prudent to do so, the Central Bank will consider, at a minimum, the following as circumstances which may necessitate a supervisory capital adjustment under Pillar 2:

i. Where the business model and/or strategy is very risky or difficult to assess. For example, in the normal course of business, the type and volume of activities may change, as will the different risk exposures, causing fluctuations in the overall capital ratio;

ii. Where there are strategic or cyclical risks inherent in the LFI's business model that need to be incorporated into its capital planning. These will emanate from appropriate stress testing – the results of which should be shared and discussed with the Central Bank and summarised in the ICAAP document;

iii. Where risks exist (either specific to individual LFIs, or more generally to an economy at large) that are only partially, or not captured by Pillar 1- unless management can show that those risks are adequately mitigated in some other way, (such as by recognised risk management techniques that have been put into place and assessed as adequate by the Central Bank);

iv. Where the LFI is a recently licensed entity or has or plans to significantly change its business activities;
v. Where the LFI participated in a merger/acquisition;
vi. Where the ICAAP and/or supporting inputs are considered ill-defined or inadequately implemented;
vii. Where it may be costly for LFIs to raise additional capital in the future, especially if this needs to be done quickly or at a time when market conditions are unfavourable;
viii. Where regulatory compliance risk of the LFI is assessed as high; and
ix. Where there are material deficiencies in the governance and/or risk management framework of the LFI.

The Central Bank has the discretion to use the tools best suited to the circumstances of the LFI and its operating environment. Therefore, LFIs should be guided accordingly.

APPENDIX I
DIAGRAM ILLUSTRATING THE ICAAP

APPENDIX 1

AN EXAMPLE OF STEPS TO AN ICAAP

STEPS	TYPES OF QUESTIONS TO ASK & CONSIDERATIONS	EXAMPLES OF DOCUMENTATION	LEVEL OF RESPONSIBILITY
Identify Risk Appetite and risk profile (material risks are identified in this stage)	What is the enitity's business strategy and risk appetite? Does it employ a conservative or a risky strategy, for example? In what type of business is the entity engaged ? What are the risks inherent in its type of business? Any plans for product/service expansion? If so, what are the risks inherent in any proposed new ventures and how will they be managed? What were the main reasons for past losses and the likelihood of similar losses? How much capital is needed to cover risks identified? (Capital Planning)	Business Strategy Risk Managemment Structure	**BOARD OF DIRECTORS**
Assess risks identified and align with business lines and operational sub units	How are the individual risk monitored? For example, what reports, limits, reporting lines and controls are employed to manage each risk? What is your definition of material and non-material? Assignment of limits to individual risk categories and lines of business or operational sub-units. Identify your use of risk mitigants e.g. insurance, hedging What is the role of stress and scenario testing in your assessment of risk?	Stress Testing Variables defined Management reports	**CHIEF RISK OFFICER/SNR MGMT/LINE MGMT**
Develop and maintain suitable risk policy/ strategy to aid management in setting individual risk limits	How will the defined risk appetite be managed? What expertise is needed to manage the risk profile identified?	Risk Policy which details, inter alia, limits and managerial responsibilities Individual risk policies e.g. Credit Risk Management Policy	**BOARD OF DIRECTORS/CHIEF RISK OFFICER/SNR MGMT**
Determine what (if any) quantification techniques are to be used to quantfy risk capital and quantify	Describe processes/quantification techniques used to link capital to the material risks Do the complexity of the risk/business operations warrant a complex model to quantify the risk or will an add-on/capital cushion method be used? Or a combination of the two? Does the expertise exist in house to execute a particular technique?	Documentation detailing rationale for choice of quantification technique. Documentation detailing technique chosen e.g. inputs and outputs of Model	**CHIEF RISK OFFICER/SNR MGMT/LINE MGMT**
APPROACH CHOSEN **SIMPLE** / **MODEL**	**Simple** How much buffer is needed to cover the Pillar 2 risks (risks outside of Pillar 1)? **Model** Will a shelf or a customised model be used? Does it meet supervisory requirements?	Output reports of Approach Chosen	**CHIEF RISK OFFICER/SNR MGMT/LINE MGMT**
Aggregate risk capital to determine ICAAP # i.e. the total required economic capital	Are there diversfication and correlation benefits among the risk categories? What are the assumptions made when aggregating? Are there any differences between the ICAAP number and the amount of capital required under Pillar 1? How does the ICAAP number influence/inform management decisions?	Detailed Assumptions Report detailing the ICAAP number and its interpretation	**BOARD OF DIRECTORS/CHIEF RISK OFFICER/SNR MGMT**

ONGOING REVIEW PROCESS

APPENDIX II

KEY FEATURES OF A RISK APPETITE STATEMENT (RAS)

A. The risk appetite statement (RAS):

i. Is the written articulation of the aggregate level and types of risk that an LFI will accept, or avoid, in order to achieve its business objectives. A well-developed risk appetite articulated through a RAS is a critical aspect of an effective risk governance framework. The LFI should therefore develop and clearly convey its RAS throughout the institution to reinforce a strong risk culture.

ii. Is a statement to address reputation and conduct risks, as well as money laundering and unethical practices[14]. It should also include measures expressed relative to earnings, capital, risk measures, liquidity and other relevant measures as appropriate.

B. An effective risk appetite statement should:

a) Include qualitative statements that articulate clearly the motivations for taking on or avoiding certain types of risk, and establish some form of boundaries or indicators (for example non-quantitative measures) for monitoring these risks;

b) Include quantitative measures which can be translated into risk limits applicable to business lines and legal entities as relevant, and at group level, which in turn can be aggregated and disaggregated to enable measurement of the risk profile against risk appetite and risk capacity;

c) Include key background information and assumptions that informed the LFI's strategic and business plans at the time of approval;

d) Be linked to the institution's short- and long-term strategic, capital and financial plans, as well as compensation programs;

e) Establish the amount of risk the financial institution is prepared to accept in

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[14] 1 BCBS (2015), *Corporate governance principles for banks* (See 'Glossary).

pursuit of its strategic objectives and business plan, taking into account the interests of its customers (for example depositors, policyholders) and the fiduciary duty to shareholders, as well as capital and other regulatory requirements;

f) Determine for each material risk, and overall the maximum level of risk that the LFI is willing to operate within, based on its risk appetite, risk capacity, and risk profile;

g) Ensure that the strategy and risk limits of each business line and legal entity, as relevant, align with the institution-wide risk appetite statement as appropriate; and

h) Be forward looking and, where applicable, subject to stress testing to ensure that the financial institution understands what events might push the financial institution outside of its risk appetite and/or risk capacity.

APPENDIX III

OTHER TYPES OF RISKS AND OTHER ISSUES

LFIs are required to include in their capital assessment, any other material risks to which they are exposed and to be mindful of the capital adequacy effects of concentrations which may arise within each risk type:

1. Strategic/Business Risk

a) Strategic/business risks may impact on the capital of an LFI as a result of adverse business decisions, improper implementation of those decisions, or a lack of responsiveness to political, fiscal, regulatory, economic, cultural, market or industry changes.

b) LFIs should constantly review and assess the compatibility of their strategic goals with the prevailing environment in which they have material operations. There will be both quantitative and qualitative dimensions to the resources needed to carry out business strategies. These include effective communication channels, efficient operating systems, reliable delivery networks, and good quality management and staff.

c) Quantitative considerations in the assessment of strategic risk may include, for example, operating expenses (for example as percentage (%) of operating income) and loans (both performing and non-performing). Qualitative considerations may include growth plans in areas such as deposits, loans/advances, profits, or expansion in activities.

2. Reputational Risk

a) Reputational risk often arises because of inadequate management of other risks including insurance, market, credit, and operational risks, whether they are associated with direct or indirect involvement in the sale or origination of complex financial transactions or relatively routine operational activities.

b) Reputational risk can lead to the provision of implicit support[15], which may give rise to credit, liquidity, market and legal risk – all of which can have a negative impact on an institution's earnings, liquidity and capital position.

c) An LFI should identify potential sources of reputational risk to which it is exposed. This includes the institution's business lines, liabilities, affiliated operations, off-balance sheet vehicles and markets in which it operates. The risks that arise should be incorporated into the institution's risk management process and appropriately addressed in its ICAAP and liquidity contingency plans.

d) LFIs should have in place appropriate policies to identify sources of reputational risk when entering new markets, products or lines of activities. In addition, an institution's stress testing procedures should take account of reputational risk so management has a firm understanding of the consequences and second round effects of reputational risk.

e) LFIs should pay particular attention to the effects of reputational risk on their 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.

3. Securitisation Risk

a) Where securitisation activities[16] are material, an LFI's ICAAP needs to consider the risks arising from originating, structuring, distributing and/or investing in such assets, both on and off balance sheet, including risks that are

[15] For example, in stressed conditions LFIs may go beyond their contractual obligations to support their sponsored securitisations and off-balance sheet instruments. Further, where an institution sponsors activities such as money market mutual funds, in-house hedge funds and real estate investment trusts (REITs) it may decide to support the value of shares/units held by investors even though it is not contractually required to provide the support.

[16] For example, securitisation of own-assets for risk transfer and/or funding; provision of backstop credit facilities to third-party conduits and the provision of non-contractual or implicit support to securitisation vehicles.

fully captured in minimum regulatory capital requirements. These may include, for example, reputational risk.

b) Asset performance may cause assets to return to the balance sheet through amortisation and repurchase. Disruptions in market demand for asset-backed paper may leave assets in securitisation pipelines on the balance sheet or force the originator to support its own paper. These have adverse implications for capital and liquidity that should be part of the LFI's capital and liquidity planning.

c) LFIs should develop prudent contingency plans specifying how it would respond to capital pressures that arise when access to securitisation markets is reduced. The contingency plans should also address how the institution would address valuation challenges for potentially illiquid positions held for sale or for trading. The risk measures, stress testing results and contingency plans should be incorporated into the institutions' risk management processes and ICAAP and should result in an appropriate level of capital under Pillar 2 in excess of the minimum requirements commensurate with the board's stated risk appetite/tolerance.

4. Climate Related Risk

a) The linkages between climate change and financial system risk have become increasingly evident and present unique challenges for financial institutions. For example, climate change may exacerbate credit, market, operational and reputational risk for financial institutions.

b) The risks to LFIs on account of climate change are far reaching, have uncertain and extended time horizons and have the potential to significantly impact business operations. It is therefore important, given the nature of climate related risk, that LFIs adopt a strategic, holistic and long-term approach, considering how climate-related risks might impact all aspects of their risk profile.

c) LFIs should embed climate related risk in their overall risk management framework. As a result, the LFI's policies, systems, management information and risk reports to the board should reflect climate related risk considerations. Specifically, the risk management framework should reflect climate related risk considerations and include robust structures to identify, measure, monitor, manage and report on exposure to climate related risk.

d) The LFI's ICAAP should incorporate a climate related risk assessment of the institution. At a minimum, the institution should evaluate its portfolios and determine the materiality of the risks which may emanate from a climate related event.

e) The assessment should also consider the likely impact of climate events on all aspects of the operations of the financial institution. The likelihood of such climate related risk events should also be ascertained. A contingency plan should also be developed to formalise the course of action that would be taken in the event of a climate event occurring.

f) LFIs should utilise scenario analysis to enable testing of their resilience to climate change events. In particular, climate related risk related scenarios, using appropriate assumptions, should be incorporated into the institution's stress testing framework. This should enable the institution to ascertain the potential loss and overall impact of possible climate events. This information along with the general assessment of the impact of climate change should inform decision-making by the board and senior management.

5. Cyber Security Risk

The Central Bank expects LFIs to consider IT risk, of which cyber risk is a subset, as part of their broader risk management framework:

a) By incorporating a layered approach to cybersecurity, which includes strategies involving people, processes and technology with emphasis on cyber resilience in light of ongoing threats;
b) Developing an incident response plan based on ongoing risk assessments, continuously using multiple sources that address the materiality of cyber incidents; and
c) Implementing a cyber-hygiene routine to maintain a robust security posture.

The necessary monitoring and reporting mechanism should be in place to ensure that cyber incidents are reported to the board in a timely manner[17].

6. Pension Risk

a) LFIs that offer pensions must have in place appropriate systems for measuring, monitoring and controlling pension obligation risk and its impact on liquidity and profitability. Similarly, LFIs that manage or provide trustee services for pension plans must also have adequate systems in place to ensure that these plans are administered appropriately from an operational and reputational standpoint. In assessing the level of risk, there should be a well-founded projection to evaluate the corresponding Pillar 2 capital charge.

7. Valuation Practices

a) LFIs are expected to have adequate governance structures and control processes for fair valuing of exposures for risk management and financial reporting purposes. The valuation governance structures and related processes should be embedded in the overall governance structure of the institution and consistent for both risk management and reporting purposes.

[17] Shortly, the ECCB will issue a *Prudential Standard on Cybersecurity for Institutions Licensed to Conduct Banking Business under the Banking Act.*

b) The governance structures and processes are expected to explicitly cover the role of the board and senior management. In addition, the board should receive reports from senior management on the valuation oversight and valuation model performance issues as well as all significant changes to valuation policies.

c) New product approval processes should include all internal stakeholders relevant to risk measurement, risk control, and the assignment and verification of the valuation of financial instruments.

d) LFIs should have control processes in place for measuring and reporting valuations that are consistently applied across the institution and integrated with risk measurement and management processes. In particular, controls should be applied consistently across similar instruments (risks) and business lines (books). These controls should 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.

e) The valuation and new product approval processes should be supported by a transparent, well-documented inventory of acceptable valuation methodologies that are specific to products or businesses.

f) To establish and verify valuations for instruments and transactions in which it engages, an LFI must have adequate capacity available, including during periods of stress. This capacity should be commensurate with the importance, riskiness and size of these exposures in the context of the business profile of the institution.

g) The relevance and reliability of valuations is directly related to the quality and reliability of the inputs. LFIs are 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.

h) Where values are determined to be in an active market, LFIs should 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 inactive, transactions may not be observable or observable inputs or transactions may not be relevant, such as in forced liquidation or distressed sale. In such cases, accounting fair guidance provides assistance on what should be considered, but may not be determinative.

8. Sound Compensation Practices

a) 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 should be linked to longer-term capital preservation and the financial strength of the institution, and should consider risk-adjusted performance measures.

b) The board and senior management of an LFI have the responsibility to mitigate the risks arising from remuneration policies in order to ensure effective risk management.

c) The board must actively oversee the compensation system's design and operation that should not be controlled primarily by the CEO and management team. Relevant board members and employees must have independence and expertise in risk management and compensation.

9. Cross Border Lending

a) LFIs that engage in cross border lending are subject to increased risk including country risk, concentration risk, foreign currency risk (market risk) as well as regulatory, legal, compliance and operational risks, all of which should be reflected in the ICAAP.

b) Laws and regulatory actions in foreign jurisdictions could make it much more difficult to realise assets and security in the event of a default. Where regulatory, legal and compliance risks associated with concentrations in cross border lending are not considered elsewhere in an institution's risk assessment process, additional capital may be required for this type of lending in an LFI's CAAP.

LFIs are required to conduct their assessments on the basis of their risk profile. LFIs should refer to the relevant prudential standard(s) issued by the Central Bank for further considerations relevant to the management of the respective risks.

10. Risk Aggregation and Diversification Benefits

a) An effective ICAAP should assess the risks across the entire LFI. An LFI choosing to conduct risk aggregation among various risk types or business lines should understand the challenges in such aggregation.

b) When aggregating risks, LFIs should ensure that any potential concentrations across more than one risk dimension are addressed, given that losses could arise in several risk dimensions simultaneously, stemming from the same event or a common set of factors. For example, a localised natural disaster could generate losses from credit, market, and operational risks at the same time.

c) An LFI should have systems capable of aggregating risks based on its selected framework. For example, an LFI calculating correlations among risk types should consider data quality and consistency, and the volatility of correlations over time and under stressed market conditions.

APPENDIX IV

Type and Depth of Documentation Required

Responsibility	Subject of Documentation	Significance and level of detail (increases with direction of arrow)
Board	Example of document type : **Risk Strategy** - Risk appetite - Risk Management Structure	**Strategic Significance**
Chief Risk Officer	Example of document type: **Risk Manual** - Risk Management Process - Risk assessment, control and monitoring tools	**Level of Detail and frequency of revisions**
Division/ Department	Example of document type: **Department Specific manuals** - IT user manuals - Work objectives	

APPENDIX V

OVERVIEW OF THE SUPERVISORY REVIEW AND EVALUATION PROCESS

The Central Bank will review the internal process by which an LFI assesses its capital adequacy, risk position, resulting capital levels, and quality of capital held to determine that:

a) Target levels of capital are comprehensive and relevant to the current operating environment;

b) The established target levels of capital are properly approved, monitored and reviewed by senior management; and

c) The composition of capital is appropriate for the nature and scale of the business of the LFI.

REVIEW OF THE ADEQUACY OF RISK ASSESSMENT

The Central Bank will assess the degree to which internal targets and processes incorporate the full range of material risks faced by the financial institution.

The Central Bank will also review the adequacy of risk measures used in assessing internal capital adequacy and the extent to which these risk measures are used operationally in setting limits and triggers, evaluating business line performance, and evaluating and controlling risks more generally. The Central Bank will assess the appropriateness of the risk appetite statement when compared to the LFI's strategic objectives.

In its SREP, the Central Bank will also place particular emphasis on the quality of the risk management and controls of a financial institution which may be assessed by any combination of:

(a) On-site examinations or inspections;

(b) Off-site review including review of period/prudential reporting;

(c) Discussions with management; and

(d) Review of work done by internal and/or external auditors (provided it is adequately focused on the necessary capital issues).

ASSESSMENT OF THE EFFECTIVENESS OF INTERNAL STRESS TESTING

The Central Bank will consider the results of sensitivity analyses and stress tests conducted by the institution and how these results relate to capital plans. Specifically, the Central Bank will:

(a) Assess the effectiveness of an LFI's stress testing programme to identify relevant vulnerabilities;

(b) Review the key assumptions driving stress testing results;

(c) Challenge their continuing relevance in view of existing and potentially changing market conditions; and

(d) Challenge LFIs on how stress testing is used and the way it affects decision-making.

Where the Central Bank's assessment reveals material shortcomings, it will require the LFI to detail a plan of corrective action. The Central Bank will consider the extent to which the LFI has provided for unexpected events in setting its capital levels. This analysis should cover a wide range of external conditions and scenarios. The sophistication of techniques and stress tests used should be commensurate with the LFI's activities.

REVIEW OF COMPLIANCE WITH MINIMUM CAPITAL REQUIREMENTS

For specific areas under the Standardised Approach to be recognised for regulatory capital purposes (such as operational risk, credit risk mitigation techniques and asset securitisations), financial institutions are required to meet a number of minimum requirements, including risk management standards and disclosures. In particular, LFIs are required to disclose features of their methodologies to calculate minimum capital requirements.

The Central Bank will assess the institution's adherence to these minimum standards and qualifying criteria as an integral part of the supervisory review process. In this context, the Central Bank will ensure that the 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.

ASSESSMENT OF THE CONTROL ENVIRONMENT

In conducting its ICAAP reviews, the Central Bank will have regard to, inter alia, the:-

a) Soundness of the overall ICAAP given the nature and scale of business activities;
b) Degree of management involvement in the process for example, whether target and actual capital levels are monitored and reviewed by the board;
c) Extent to which the internal capital assessment is used routinely within a financial institution for decision-making purposes;
d) Extent to which a financial institution has considered unexpected events in setting capital levels;
e) Quality of the financial institution's management information reporting and systems;
f) Manner in which business risks and activities are aggregated;
g) Management's record in responding to emerging or changing risks;
h) Reasonableness of the outcome of the ICAAP and in particular whether the:-
   i. Amount of capital determined in the ICAAP is sufficient to support the risks faced by the financial institution;
   ii. Level and composition of capital determined in the ICAAP:-
      1) Is comprehensive and relevant to the institution's current operating environment;
      2) Is appropriate for the nature and scale of the its business activities;
      3) Is appropriate for the adequacy of its risk management process and internal controls; and
      4) Considers external factors such as business cycle effects and the macroeconomic environment.

The Central Bank may, where necessary, request further information and meet with the board and senior management of financial institutions in order to evaluate fully the comprehensiveness of the ICAAP and the adequacy of the governance arrangements around it. The institution's management should be prepared to discuss and defend all aspects of the ICAAP, including both quantitative and qualitative components. Among other things, the board and senior management should be able to explain and demonstrate to the Central Bank:

(a) An understanding of the ICAAP consistent with their ownership of the process;

(b) How the ICAAP meets supervisory requirements;

(c) How material risks are defined, categorized and measured;

(d) How internal capital targets are chosen and how those targets are consistent with the overall risk profile, current operating environment and future business needs; and

(e) The reason for any differences between the target level of capital computed based on the ICAAP and the capital target determined by the Central Bank.