



EUROPEAN CENTRAL BANK

EUROSYSTEM

# ECB Guide to the internal capital adequacy assessment process (ICAAP)

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# 1 Introduction

1. The depth and severity of financial shocks are often amplified by inadequate and low-quality capital in the banking sector. This was the case in the recent financial crisis, when banks were forced to rebuild their capital bases at the point when it was most difficult to do so. On the other hand, many risks were not appropriately covered by a commensurate amount of capital, owing to weaknesses in banks' risk identification and assessment.<sup>1</sup> It is therefore of paramount importance to raise the resilience of individual credit institutions in periods of stress by seeking improvements in their forward-looking internal capital adequacy assessment processes (ICAAPs), including comprehensive stress testing and capital planning.
2. Accordingly, the ICAAP plays a key role in the risk management of credit institutions. As regards significant institutions established in the Single Supervisory Mechanism (SSM), the ECB expects the ICAAP in accordance with the provisions in Article 73 of the Capital Requirements Directive (CRD IV)<sup>2</sup> to be prudent and conservative.<sup>3</sup> The ECB is of the view that sound, effective and comprehensive ICAAPs comprise a clear assessment of the risks to capital, and have well-structured risk governance and risk escalation processes based on a well-thought out and thorough risk strategy which is translated into an effective risk limit system.
3. In the ECB's view, a sound, effective and comprehensive ICAAP is based on two pillars: the economic and the normative perspectives. Both perspectives are expected to complement and inform each other.
4. The ICAAP is also an important input factor in the SSM Supervisory Review and Evaluation Process (SREP). It feeds into the SREP assessments of business models, internal governance and overall risk management, and into the risk control assessments for risks to capital and the Pillar 2 capital determination process.
5. In the SREP, it is acknowledged that a good ICAAP reduces an institution's and its supervisors' uncertainty concerning the risks that the institution is or may be exposed to, and gives supervisors an increased level of confidence in the institution's ability to continue by maintaining adequate capitalisation and by managing its risks effectively. This requires the institution, in a forward-looking

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<sup>1</sup> See, for example, *The Basel Committee's response to the financial crisis: report to the G20*, Basel Committee on Banking Supervision, October 2010.

<sup>2</sup> Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC (OJ L 176, 27.6.2013, p. 338).

<sup>3</sup> Article 73 CRD IV: "Institutions shall have in place sound, effective and comprehensive strategies and processes to assess and maintain on an ongoing basis the amounts, types and distribution of internal capital that they consider adequate to cover the nature and level of the risks to which they are or might be exposed."

manner, to ensure that all material risks are identified, effectively managed (using an appropriate combination of quantification and controls) and covered by a sufficient amount of high-quality capital.

## 1.1 Purpose

6. The purpose of this ECB Guide to the ICAAP (the “Guide”) is provide transparency by making public the ECB’s understanding of the ICAAP requirements following from Article 73 CRD IV. The Guide is aimed at assisting institutions in strengthening their ICAAPs and at encouraging the use of best practises by explaining in greater detail the ECB’s expectations on the ICAAP, leading to more consistent and effective supervision.
7. The Guide deduces from the CRD IV ICAAP provisions seven principles that will be considered, inter alia, in the assessment of each institution’s ICAAP as part of the SREP. These principles will also be referred to in discussions with individual institutions in the supervisory dialogue.
8. The Guide does not substitute or supersede any applicable law implementing Article 73 of CRD IV. Insofar as the Guide is not in line with applicable law, the applicable law prevails. The Guide is intended to be a practical tool that is updated regularly to reflect new developments and experience. Consequently, the principles and expectations laid out in this Guide will evolve over time. It will be reviewed in the light of the ongoing development of European banking supervision practice and methodologies, international and European regulatory developments and, for example, new authoritative interpretations of relevant directives and regulations by the Court of Justice of the European Union.
9. This Guide follows a principles-based approach with a focus on selected key aspects from a supervisory perspective. It is not meant to provide complete guidance on all aspects relevant for sound ICAAPs. The implementation of an ICAAP that is adequate for an institution’s particular circumstances remains the responsibility of the institution. The ECB assesses institutions’ ICAAPs on a case-by-case basis.
10. In addition to this Guide, and in addition to relevant Union law and national law, institutions are encouraged to take into account other ICAAP-relevant publications from the EBA and international fora like the Basel Committee on Banking Supervision (BCBS) and the Financial Stability Board (FSB). Furthermore, institutions should take into account all ICAAP-related recommendations addressed to them, e.g. recommendations resulting from the SREP, such as those related to sound governance, to risk management and to controls.

## 1.2 Scope and proportionality

11. This Guide is relevant for any credit institution which is considered to be a significant supervised entity as referred to in Article 2(16) of the SSM Framework Regulation.<sup>4</sup> The ICAAP scope is determined by Article 108 CRD IV. This means in particular that a parent institution in a Member State and institutions controlled by a parent financial holding company or a parent mixed financial holding company in a Member State shall meet the ICAAP obligations set out in Article 73 CRD IV on a consolidated basis or on the basis of consolidated situation of that financial holding company or mixed financial holding company. Given that Article 73 CRD IV is a minimum harmonisation provision, and its transposition has therefore been dealt with in different ways in different Member States, a wide variety of ICAAP practices and requirements for the supervision of SIs exist in participating Member States.
12. The ECB, together with the national competent authorities (NCAs), has developed ICAAP principles. The objective of these principles is to ensure high standards of supervision by fostering the development of common methodologies in this important supervisory area.
13. The ICAAP is, above all, an internal process, and it remains the responsibility of individual institutions to implement it in a proportionate and credible manner. Pursuant to Article 73 CRD IV, ICAAPs have to be proportionate to the nature, scale and complexity of the activities of the institution.
14. The principles developed in this Guide shall only serve as a starting point in supervisory dialogues with credit institutions. Therefore, they should not be understood as comprehensive covering all aspects necessary to implement a sound, effective and comprehensive ICAAP. It is the responsibility of the institution to ensure that its ICAAP is sound, effective and comprehensive duly taking into account the nature, scale and complexity of its activities.

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<sup>4</sup> Regulation (EU) No 468/2014 of the European Central Bank of 16 April 2014 establishing the framework for cooperation within the Single Supervisory Mechanism between the European Central Bank and national competent authorities and with national designated authorities (SSM Framework Regulation) (ECB/2014/17) (OJ L 141, 14.5.2014, p. 1).

## 2 Principles

### Principle 1 – The management body is responsible for the sound governance of the ICAAP

- (i) In view of the major role of the ICAAP for the institution, all of its key elements are expected to be approved by the management body. The management body, senior management and relevant committees are expected to discuss and challenge the ICAAP in an effective way.
- (ii) Each year, the management body is expected to provide its assessment of the capital adequacy of the institution, supported by ICAAP outcomes and any other relevant information, by producing and signing a clear and concise statement, the capital adequacy statement (CAS).
- (iii) The management body has overall responsibility for the implementation of the ICAAP, and it is expected to approve an ICAAP governance framework with a clear and transparent assignment of responsibilities, adhering to the segregation of functions. The governance framework is expected to include a clear approach to the regular internal review and validation of the ICAAP.

### The management body approves key elements of the ICAAP

15. The management body is expected to produce and sign the CAS, and approve the key elements of the ICAAP, for example:
  - the governance framework;
  - internal documentation requirements;
  - the perimeter of entities captured, the risk identification process, and the internal risk inventory and taxonomy, reflecting the scope of material risks;
  - risk quantification methodologies,<sup>5</sup> including high-level risk measurement assumptions and parameters (e.g. time horizon, diversification assumptions, confidence levels, and holding periods), supported by reliable data and sound data aggregation systems;
  - methodologies used to assess capital adequacy (including the stress-testing framework and a well-articulated definition of capital adequacy).
16. The management body comprises a supervisory function and a management function that may be performed by a single body or two separate bodies. Which

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<sup>5</sup> The ICAAP Guide does not prescribe a particular methodology for quantifying risks. This is explained in more detail in the section on “Choice of risk quantification methodologies” under Principle 6.

key elements of the ICAAP are approved by which function depends on the internal governance arrangements of the institution, which will be interpreted by the ECB in accordance with national regulations and in line with relevant Union law and EBA guidelines.<sup>6</sup>

## Internal review and validation

17. According to Article 73 CRD IV, the ICAAP shall be subject to regular internal review Both qualitative and quantitative aspects, including, for example, the use of ICAAP outcomes, the stress-testing framework, risk capture and the data aggregation process, are expected to be considered by this regular internal review,<sup>7</sup> including proportionate validation processes for internal risk quantification methodologies used. For this purpose, the institution is expected to have in place adequate policies and processes for internal reviews.
18. The ECB expects a defined process to be in place in order to ensure proactive adjustment of the ICAAP to any material changes that occur, such as entering new markets, providing new services, offering new products, or changes in the structure of the group or financial conglomerate.
19. ICAAP outcomes and assumptions are expected to be subject to adequate back-testing and performance measurement, covering, for example, capital planning, scenarios, and risk quantification.

## Capital adequacy statement

20. In the CAS, the management body provides its assessment of the capital adequacy of the institution and explains its main supporting arguments, backed by information it considers relevant, including ICAAP outcomes. The ECB is of the view that a sound CAS demonstrates that the management body has a good understanding of the capital adequacy of the entity, its main drivers and vulnerabilities, the main ICAAP inputs and outputs, the parameters and processes underlying the ICAAP, and the coherence of the ICAAP with its strategic plans.
21. The authority to sign the CAS on behalf of the management body is expected to be decided by the institution in the light of national regulations and relevant prudential requirements and guidelines.<sup>8</sup>

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<sup>6</sup> See recital 56 and Article 3(1)(7) to (9) CRD IV and Title II of the EBA Guidelines on internal governance (EBA/GL/2017/11).

<sup>7</sup> Internal reviews of the ICAAP are expected to be carried out comprehensively by the three lines of defence, including business lines and the independent internal control functions (risk management, compliance and internal audit), in accordance with their respective roles and responsibilities.

<sup>8</sup> The EBA Guidelines on internal governance (EBA/GL/2017/11) describe in more detail the allocation of tasks and responsibilities between the supervisory and management functions of the management body.

## Principle 2 – The ICAAP is an integral part of the overall management framework

- (i) Pursuant to Article 73 CRD IV, the institution is expected to have in place sound, effective and comprehensive strategies and processes to assess and maintain capital that it considers adequate to cover the nature and level of the risks to which it is or might be exposed.
- (ii) In addition to an adequate quantitative framework for assessing capital adequacy, a qualitative framework needs to ensure that capital adequacy is actively managed. This includes the monitoring of capital adequacy indicators to identify and assess potential threats in a timely manner, drawing practical conclusions and taking preventive action to ensure that both own funds and internal capital remain adequate.<sup>9</sup>
- (iii) The quantitative and qualitative aspects of the ICAAP are expected to be consistent with each other and with the institution's business strategy and risk appetite. The ICAAP is expected to be integrated into the business, decision-making and risk management processes of the institution. The ICAAP is expected to be consistent and coherent throughout the group.
- (iv) Institutions are expected to maintain a sound and effective overall ICAAP architecture and documentation of the interplay between the ICAAP elements and the integration of the ICAAP into the institution's overall management framework.
- (v) The ICAAP is expected to support strategic decision-making and, at the same time, be operationally aimed at ensuring that the institution maintains adequate capitalisation on an ongoing basis, thereby promoting an appropriate relationship between risks and rewards. All methods and processes used by the institution to steer its capital adequacy, as part of the operational or strategic capital adequacy management process, are expected to be approved, thoroughly reviewed, and properly included in the ICAAP and its documentation.

### The ICAAP as an integral part of an institution's management framework

22. In order to assess and maintain adequate capital to cover the institution's risks,<sup>10</sup> the internal processes and arrangements are expected to ensure that quantitative analysis of risks, as reflected in the ICAAP, is integrated into all material business activities and decisions.

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<sup>9</sup> For a description of the internal capital concept, see Principle 5.

<sup>10</sup> The general expectations regarding the quantitative part of the ICAAP are introduced under Principle 3.



23. This integration may be achieved by using the ICAAP for, for example, the strategic planning process at group level, monitoring capital adequacy indicators to identify and assess potential threats in a timely manner, drawing practical conclusions and taking preventive action, determining capital allocation, and ensuring the ongoing effectiveness of the risk appetite framework (RAF). ICAAP-based risk-adjusted performance indicators are expected to be used in the decision-making process and, for example, when determining variable remuneration or when discussing business and risks at all levels of the institution, including, inter alia, in asset-liability committees, risk committees and meetings of the management body.

## The overall ICAAP architecture

24. The management body is responsible for maintaining a sound and effective overall ICAAP architecture, ensuring that the different elements of the ICAAP fit coherently together and that the ICAAP is an integral part of the institution's overall management framework. The institution is expected to have a clear view of how these elements are consistently integrated into an effective overall process that allows it to maintain capital adequacy over time.
25. For this purpose, the institution is expected to maintain as part of its ICAAP documentation a description of the overall ICAAP architecture, for example an overview of the key elements of the ICAAP and how they work together, explaining how the ICAAP is integrated and how its outcomes are used in the institution. This ICAAP architecture description is expected to explain the high-level structure of the ICAAP, how its outcomes are used in decision-making, and the connections between, for example, business and risk strategies, capital plans, risk identification processes, the risk appetite statement, limit systems, risk quantification methodologies, the stress-testing programme, and management reporting.

## Management reporting

26. The ICAAP is an ongoing process. The institution is expected to integrate ICAAP outcomes (such as material evolution of risks, key indicators, etc.) into its internal management reporting at an appropriate frequency. The frequency of reporting is expected to be at least quarterly, but, depending on the size, complexity, business model and risk types of the institution, reporting might need to be more frequent to ensure timely management action.
27. The ICAAP outcomes regarding risk quantification and capital allocation, when approved, are expected to become a key performance benchmark and target against which each (risk-taking) division's financial and other outcomes are measured. This is expected to be supported by the implementation of a sound ICAAP governance framework and architecture as described under Principle 1.

## The ICAAP and the risk appetite framework

28. The RAF of the institution is expected to formalise the interplay between the RAF and other strategic processes, such as the ICAAP, the ILAAP, the recovery plan and the remuneration framework, in accordance with the SSM supervisory statement on governance and risk appetite.<sup>11</sup> A well-developed RAF, articulated through the risk appetite statement, is expected to be an integral part of the ICAAP architecture and a cornerstone of sound risk and capital management.
29. In its risk appetite statement, the institution is expected to set out a clear and unambiguous view on and intended actions with regard to its risks in line with its business strategy. In particular, the statement is expected to include motivations for taking on or avoiding certain types of risks, products or regions.
30. The institution's overall risk profile is expected to ultimately be constrained and driven by the group-wide RAF and its implementation. Furthermore, the RAF is a critical element of the institution's strategy development and implementation process. In a structured manner, the RAF links risks taken to the institution's capital adequacy and strategic objectives. As part of the RAF, the institution is expected to determine and take into account its management buffers.
31. The institution is expected to clearly express how the implementation and monitoring of its strategy and risk appetite are supported by its ICAAP, and how this effectively allows it to comply with the agreed risk boundaries set out in the risk appetite statement. In order to facilitate sound and effective risk management, the institution is expected to use the ICAAP outcomes when setting up an effective risk monitoring and reporting system and an adequately granular limit system (including effective escalation procedures) that allocates specific limits to, for example, individual risks, sub-risks, entities and business areas, promoting the risk appetite statement of the group.

## Consistency between ICAAPs and recovery plans

32. A recovery plan is aimed at ensuring the survival of the institution in times of distress that pose a threat to its viability. Since insufficient capitalisation is one of the key threats to business continuity/viability, there is a natural connection between the ICAAP, which supports the continuity of operations from the capital perspective, and the recovery plan, which is aimed at restoring viability when an institution has entered into a distressed situation. Accordingly, the institution is expected to ensure consistency and coherence between its ICAAP and recovery planning in terms of early warning signals, indicators, escalation procedures following breaches of these thresholds and potential management actions.<sup>12</sup> Moreover, potential management actions in the ICAAP are expected

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<sup>11</sup> See [SSM supervisory statement on governance and risk appetite](#), ECB, June 2016.

<sup>12</sup> However, where there are differences in the principles underlying the ICAAP and recovery planning, the envisaged management actions may be different.

to be reflected without delay in the recovery plan, and vice versa, to ensure the availability of up-to-date information.

### Consistency and coherence across groups

33. The ICAAP is expected to ensure capital adequacy at relevant levels of consolidation and for relevant entities within the group, as required by Article 108 CRD IV. In order to be able to effectively assess and maintain capital adequacy across entities, the strategies, risk management processes, decision-making and the methodologies and assumptions applied when quantifying capital need to be coherent across the relevant perimeter. The institution is expected to also assess possible impediments to capital transferability within the group in a conservative and prudent manner and take them into account in its ICAAP.

## Principle 3 – The ICAAP contributes fundamentally to the continuity of the institution by ensuring its capital adequacy from different perspectives

- (i) The ICAAP plays a key role in maintaining the continuity of the institution by ensuring its adequate capitalisation. In order to ensure this contribution to its continuity, the institution is expected to implement a proportionate ICAAP that is prudent and conservative and integrates two complementary internal perspectives.
- (ii) The institution is expected to implement a normative perspective which is a multi-year assessment of the institution's ability to fulfil all of its capital-related regulatory and supervisory requirements and demands and to cope with other external financial constraints on an ongoing basis over the medium term. This includes the assessment of a credible baseline scenario and adequate, institution-specific adverse scenarios, as reflected in the multi-year capital planning and in line with the overall planning objectives of the institution.
- (iii) The normative perspective is expected to be complemented by an economic perspective, under which the institution is expected to identify and quantify all material risks that may cause economic losses and deplete internal capital. In accordance with this economic perspective, the institution is expected to ensure that its risks are adequately covered by internal capital in line with its internal capital adequacy concept.
- (iv) Both perspectives are expected to mutually inform each other and be integrated into all material business activities and decisions as outlined under Principle 2.

### Objective: to contribute to the continuity of the institution

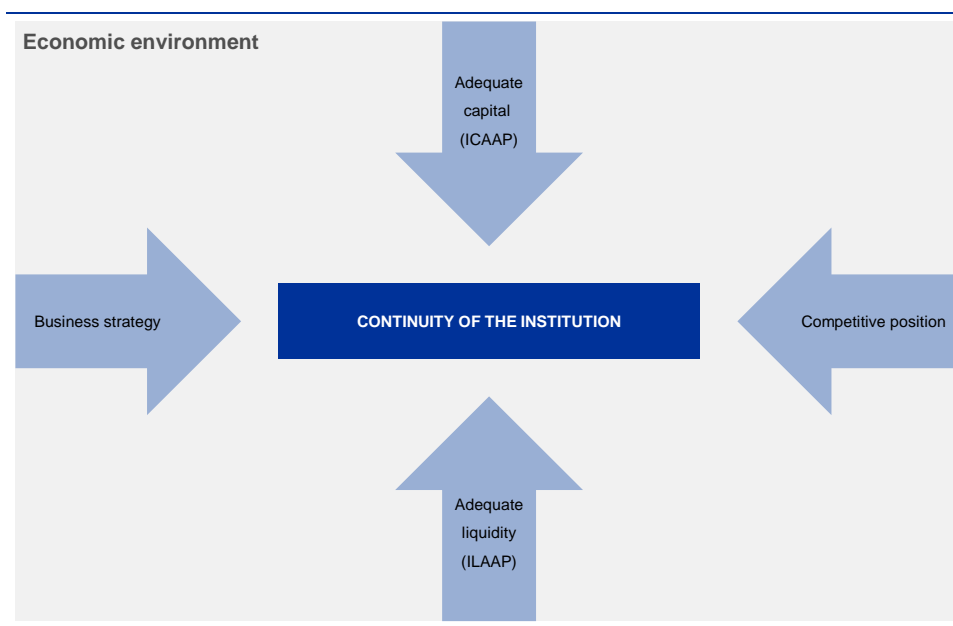
- 34. The objective of the ICAAP is to contribute to the institution's continuity from a capital perspective by ensuring that it has sufficient capital to bear its risks, absorb losses and follow a sustainable strategy, even during a prolonged period of adverse developments. The institution is expected to reflect this continuity objective in its RAF (as specified under Principle 2) and use the ICAAP framework to reassess its risk appetite and tolerance thresholds within its overall capital constraints, taking into account its risk profile and vulnerabilities.
- 35. Within these capital constraints, the institution is expected to assess and define management buffers above the regulatory and supervisory minima<sup>13</sup> and internal capital needs that allow it to sustainably follow its strategy. When aiming for sufficient management buffers over the medium-term horizon, the institution is expected to take into account, for example, the expectations of

<sup>13</sup> The management buffer concept does not actually set new minimum capital requirements above the existing legal minima. Although it is generally expected that management buffers will be larger than zero, in theory an institution may also be able to argue that, depending on the scenario assessed, a management buffer of zero would still allow it to sustainably follow its business model.

markets, investors and counterparties, possible restrictions on distributions stemming from the maximum distributable amount (MDA), and the reliance of the business model on the ability to pay out bonuses, dividends and payments on Additional Tier 1 (AT1) instruments, etc. In addition to such external constraints, the management buffers are expected, for example, to cushion uncertainties around projections of, and possibly resulting fluctuations in, capital ratios, to reflect the institution's risk appetite and to allow some flexibility in its business decisions.

**Figure 1**

The ICAAP contributes to the continuity of the institution



Figures and dimensions are for illustrative purposes only.

## Normative perspective

36. The normative perspective is a multi-year assessment of the institution's ability to fulfil all of its capital-related quantitative regulatory and supervisory requirements and demands, and to cope with other external financial constraints, on an ongoing basis.
37. In addition to, for example, leverage ratio, large exposure and minimum requirement for own funds and eligible liabilities (MREL) requirements, the institution is expected to take into account, in particular, Pillar 1 and Pillar 2 capital requirements, the CRD IV buffer framework and the Pillar 2 capital guidance, as illustrated in Figure 2.
38. The normative perspective is expected to take into account all material risks affecting the relevant regulatory ratios, including own funds and risk exposure amounts, over the planning period. Therefore, although its outcomes are expressed in regulatory metrics, the normative perspective is not limited to the

Pillar 1 risks recognised by the regulatory capital requirements. When assessing its capital adequacy under the normative perspective, the institution is expected to take into account all relevant risks it has quantified under the economic perspective and assess to what extent those risks may materialise over the planning period, depending on the scenarios applied.

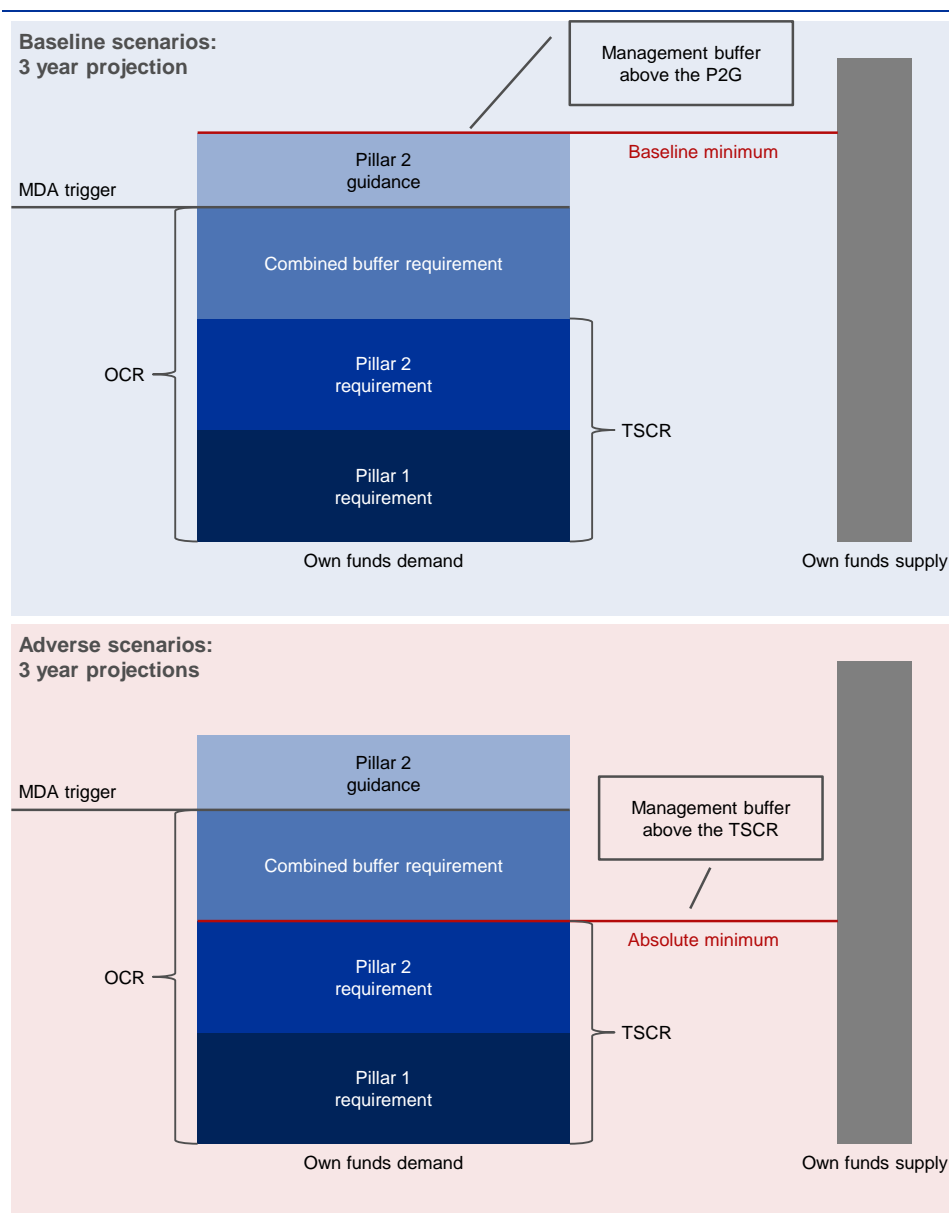
39. The institution is expected to maintain a robust up-to-date capital plan which is compatible with its strategies, risk appetite and capital resources. The capital plan is expected to comprise baseline and adverse scenarios and to cover a forward-looking horizon of at least three years. The institution is expected to also take into account the impact of upcoming changes in legal, regulatory, and accounting frameworks<sup>14</sup> and make an informed and reasoned decision on how to address them in the capital planning.

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<sup>14</sup> Depending on the likelihood and potential impact of particular changes, different treatment may be applied by the institution. For instance, some changes may seem highly unlikely, but would have such a huge impact on the institution that it is expected to prepare contingency measures. Other, more likely regulatory changes, however, are expected to be captured in the capital plan itself. Recent examples of new regulations are International Financial Reporting Standard 9 (IFRS 9), the Bank Recovery and Resolution Directive (BRRD), and the standardised approach for counterparty credit risk (SA-CCR).

**Figure 2**

Management buffers and other capital constraints under the normative perspective

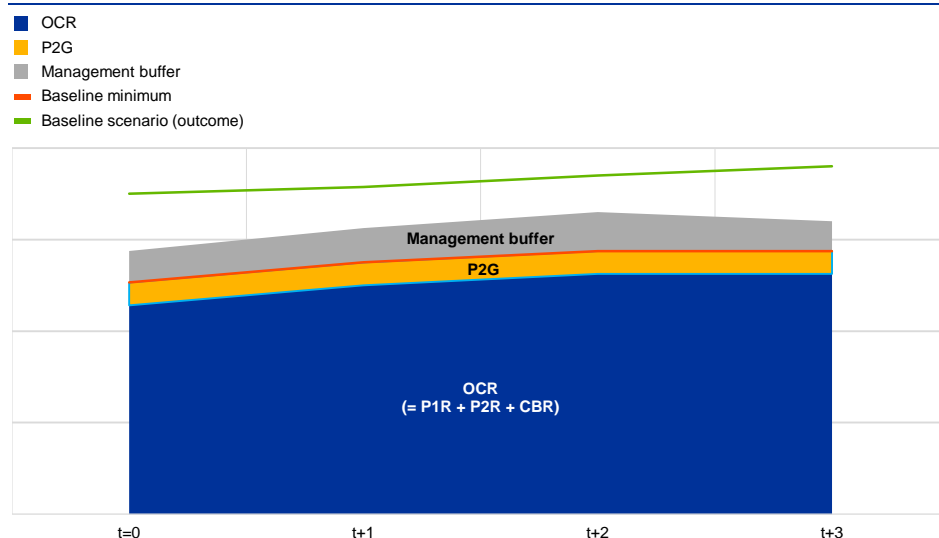


Figures and dimensions are for illustrative purposes only.

40. For non-stressed considerations, including baseline projections in capital plans, the institution is expected, in addition to the total SREP capital requirement (TSCR), to account for its combined buffer requirement (CBR), i.e. the overall capital requirement (OCR), and the Pillar 2 guidance (P2G). The institution is expected to take the above into account to determine appropriate management buffers and implement capital plans that allow it to comply with the OCR plus the P2G over the medium term under expected baseline conditions (for an illustration, see Figure 3).

**Figure 3**

Baseline capital ratio projection under the normative perspective



Figures and dimensions are for illustrative purposes only.

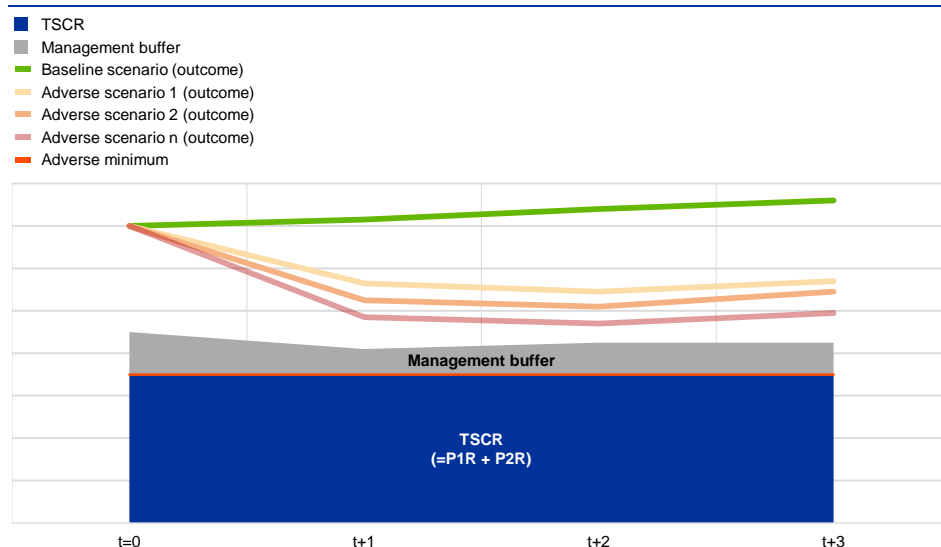
41. The institution is expected to aim to meet its TSCR at all times, including under prolonged periods of adverse developments that imply a serious CET 1 depletion. In sufficiently adverse scenarios,<sup>15</sup> it might be acceptable that the institution does not meet its P2G and combined buffer requirements. However, the institution is expected to determine adequate management buffers on top of the TSCR to take into account the above considerations, and implement them in capital plans, which would allow it to stay above its TSCR and to fulfil, for example, market expectations even under adverse conditions over the medium-term horizon (for an illustration, see Figure 4).
42. If the institution assumes management actions in its capital plan, it is expected to also assess the feasibility and the expected impact of such actions under the respective scenarios, and it is expected to be transparent about the quantitative impact of each action on projected figures. Where relevant, the assumptions used are expected to be consistent with the recovery plan.

<sup>15</sup> The severity of adverse scenarios is further elaborated under Principle 7.



**Figure 4**

**Adverse capital ratio projections under the normative perspective**



Figures and dimensions are for illustrative purposes only.

### Economic perspective

43. The institution is expected to manage its capital adequacy from the economic perspective by ensuring that its risks are adequately covered by internal capital, taking into account the expectations of Principle 5. Economic capital adequacy requires the internal capital of the institution to be sufficient to cover its risks and support its strategy on an ongoing basis. Under this perspective, the institution's assessment is expected to cover the full universe of risks that may have a material impact on its capital position, taking into account fair value considerations for its current assets, liabilities and risks.<sup>16</sup> The institution is expected to manage economic risks and adequately assess them in its sensitivity analysis and its monitoring of capital adequacy.
44. The institution is expected to use its own processes and methodologies to identify, quantify, and cover with internal capital the expected losses (as far as these are not considered in the determination of internal capital) and unexpected losses that it might be subject to, taking into account the principle of proportionality. The institution is expected to perform a point-in-time risk quantification of the current situation as at the reference date. This is expected to be complemented by an assessment of the impact of material future developments that are not incorporated in the assessment of the current

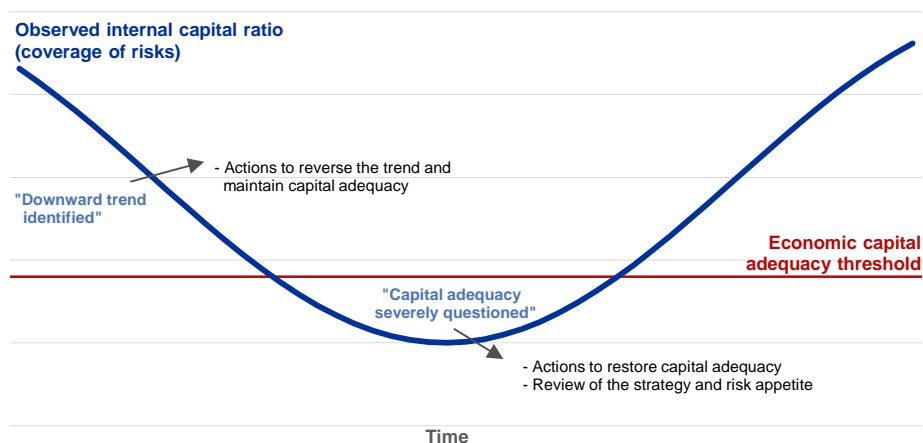
<sup>16</sup> The concept of economic capital adequacy, including, for example, the net present value concept, is subject to an institution's own definition and criteria. While the concept underlying this perspective is expected to be in line with the "economic value" concept described in the EBA Guidelines on the management of interest rate risk arising from non-trading activities (EBA/GL/2015/08) (also referred to as interest rate risk in the banking book, IRRBB), this Guide does not stipulate the use of any specific methodology to quantify the risks or the internal capital.

situation, e.g. potential management actions, changes in the external environment, etc.<sup>17</sup>

45. The institution is expected to use the outcomes and metrics of the economic capital adequacy assessment in its strategic and operational management and when reviewing its risk appetite and business strategies. In addition to prudent internal capital definition<sup>18</sup> and risk quantification, the institution is expected to present an economic capital adequacy concept that enables it to remain economically viable and follow its strategy. This includes management processes to identify in a timely manner the need for action to overcome emerging internal capital deficiencies and to take effective measures (e.g. capital increase, risk reduction).
46. The economic capital adequacy of the institution requires active monitoring and management. For this reason, the institution is expected to prepare and plan procedures and management actions to be taken to address situations that would lead to insufficient capitalisation.

**Figure 5**

Management considerations under the economic perspective



It is important to note that the graph is not expected to be understood as a projection of a point-in-time economic situation. It depicts the deterioration of economic capital levels that may occur over time beyond normal business cycle developments. The institution is expected to have a strategy for addressing such deteriorations and it is expected to actively manage capital adequacy. Most importantly, the quantifications of risks and available internal capital are expected to feed into the projections under the normative perspective.

47. When the institution identifies a significant downward trend in its economic capital position, it is expected to consider measures to maintain adequate capitalisation, reverse the trend, and review its strategy and risk appetite, as indicatively illustrated in Figure 5. Accordingly, when the institution falls below its internal capital adequacy threshold, it is expected to be able to take necessary measures and explain how the capital adequacy will be ensured over the medium term.

<sup>17</sup> Management actions include, inter alia, capital measures, acquisitions or sales of business lines, changes in the risk profile, etc.

<sup>18</sup> Expectations regarding internal capital are introduced under Principle 5.

## Interaction between the economic and normative perspectives

48. Under the economic perspective, economic risks and losses affect internal capital immediately and to their full extent. Hence, the economic perspective gives a very comprehensive view of risks.<sup>19</sup> Some of those risks, or risks related to them, may also partially or fully materialise later under the normative perspective via accounting losses, own funds reductions or prudential provisions.
49. Therefore, the institution is expected to assess under the normative perspective the extent to which the risks identified and quantified under the economic perspective may impact on its own funds and total risk exposure amount (TREA) in the future. Hence, the projections of the future capital position under the normative perspective are expected to be duly informed by the economic perspective assessments.
50. More specifically, risks and impacts that are not necessarily apparent when focusing solely on the accounting/regulatory capital framework, but could materialise and affect future regulatory own funds or the TREA, are expected to be considered.
51. Conversely, the institution is expected to also use the outcomes of the normative perspective to inform<sup>20</sup> the economic perspective risk quantifications and adjust or complement the latter if they do not adequately capture the risks arising from the adverse scenario(s) considered. Thus, the normative and economic perspectives are expected to mutually inform each other.
52. Since the capital definitions and levels, the risk types and their amounts, and the minimum capital ratios usually differ between the two perspectives, and since – over time and across institutions – one is not systematically more stringent than the other, effective risk management requires the implementation of both perspectives.<sup>21</sup>

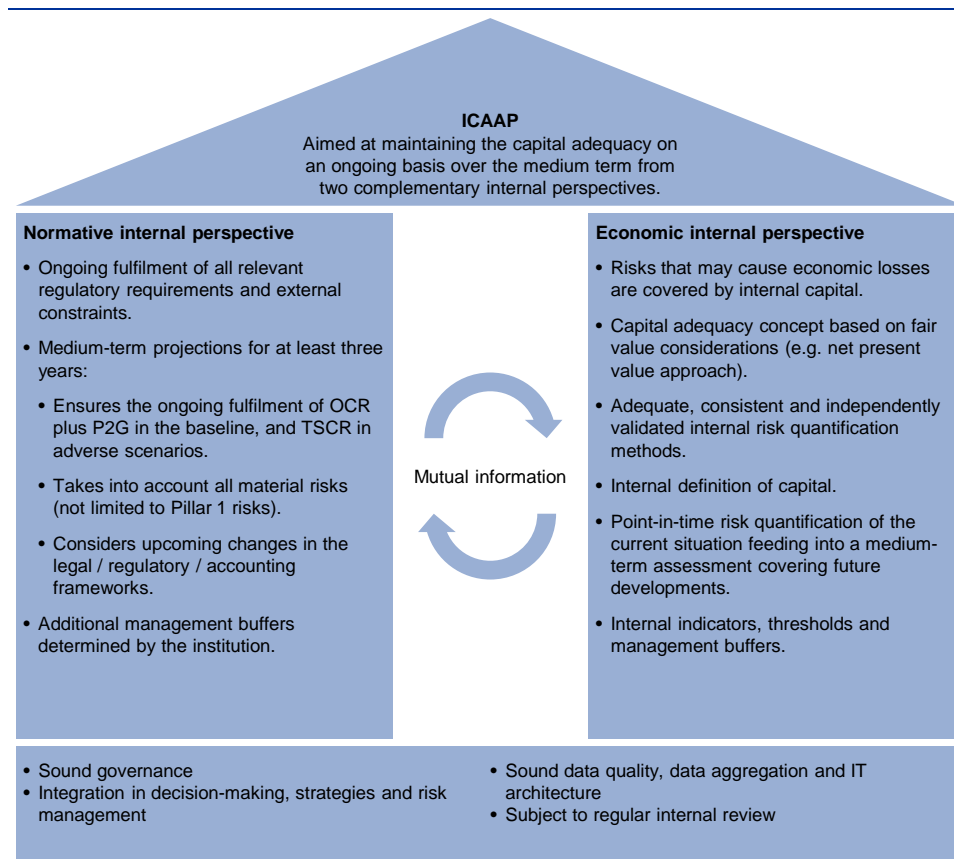
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<sup>19</sup> For example, a negative impact of IRRBB on economic value (i.e. the change in the present value of the institution's expected net cash flows) provides a view of the potential long-term effects on an institution's overall exposures. Under the normative perspective, this risk may materialise through, for example, a decrease in earnings or a transaction concerning the respective portfolio.

<sup>20</sup> This is particularly relevant for risks that are more difficult to quantify. Adjustments to the risk quantification in the economic perspective are expected to be fully justified and documented.

<sup>21</sup> The general reasoning behind this is the same as set out for IRRBB in the applicable EBA Guidelines (EBA/GL/2015/08): "It is important that interest rate risk is considered from the perspectives of both economic value and earnings. Measuring the impact on economic value (i.e. the change in the present value of the bank's expected net cash flows) provides a view of the potential long-term effects on an institution's overall exposures. Volatility of earnings is also an important focal point for interest rate analysis because significantly reduced earnings can pose a threat to future capital adequacy."

**Figure 6**  
Overview of ICAAP perspectives and key features



**Example 3.1:**  
**Management buffers**

The weaker the capital base of an institution is, the harder and more expensive it becomes for it to follow its intended business model. For example, if lower capital levels are perceived by investors, counterparties and customers as increasing the default risk of the institution, they will demand higher risk premia, which will negatively affect the institution’s profitability, potentially threatening its continuity, even though its capital levels are still above regulatory and supervisory minima.

Another example is dividends and AT1 payments. If the institution’s strategy is based on the issuance of capital instruments in the capital market, lower capital levels may lead to lower investor confidence. This may impede the institution’s capital market access and, consequently, its ability to pursue its business strategy.

Taking such considerations into account, the institution is expected to determine the levels of capital it needs in order to continue its operations. In its capital planning, the institution is expected to ensure that it can maintain its management buffers under both baseline and adverse conditions. Management buffers can vary greatly from

institution to institution; they may depend on external developments, as reflected in different scenarios, and they may vary over time.

### **Example 3.2:**

#### **The economic perspective informs the normative perspective**

The institution is expected to quantify the profit and loss (P&L) impact of interest rate risks in the banking book under the normative perspective, even though they are not considered in Pillar 1 capital requirements. While the impact of interest rate changes for banking book positions is immediately visible to the full extent under the economic perspective, it can take several years for the full impact of P&L effects on Pillar 1 capital ratios to show under the normative perspective. Consequently, the institution is expected to consider potential losses stemming from risks not considered by Pillar 1 in the adverse projections of the normative perspective.

Another example is hidden losses. While assets are conceptually taken into account at fair value/net present value under the economic perspective, the normative perspective is based on accounting and prudential values. Hidden losses become apparent when comparing accounting values and fair values. Having determined the total volume of hidden losses, the institution needs to decide the extent to which those hidden losses may also materialise in the balance sheet/P&L account, and this is expected to be taken into account in the normative perspective.

If, for example, an institution has a government bond portfolio that is subject to total hidden losses of 100, it is expected to determine what part of those hidden losses would affect its projected regulatory own funds, subject to the respective underlying medium-term scenarios. In this example, the institution may conclude that accounting losses of 10 and 20 would occur in years 1 and 2, respectively, owing to haircuts on the nominal value of the underlying bonds. These losses would need to be taken into account in the projections produced under the normative perspective.

### **Example 3.3:**

#### **The normative perspective informs the economic perspective**

The medium-term assessments of the normative internal perspective and the respective underlying scenarios are expected to inform the forward-looking view of the economic internal perspective insofar as these changes are not reflected in the point-in-time risk quantification at the respective reference date. Management actions, e.g. capital measures, dividend payments, acquisitions or sales of business lines, are expected to also be considered in the forward-looking view of the economic internal perspective. By contrast, expected changes in interest rate curves are usually taken into account in the short-term point-in-time assessment under the economic perspective.

The adverse projections of the normative perspective are expected to simulate institution-specific vulnerabilities. If such projections show a material impact stemming from a particular risk type, e.g. migration risk, then the institution is

expected to ensure that this risk is adequately quantified in the point-in-time calculation under the economic perspective.

## Principle 4 – All material risks are identified and taken into account in the ICAAP

- (i) The institution is responsible for implementing a regular process for identifying all material risks it is or might be exposed to under the economic and normative perspectives. All risks identified as material are expected to be addressed in all parts of the ICAAP in accordance with an internally defined risk taxonomy.
- (ii) Taking a comprehensive approach, including all relevant legal entities, business lines and exposures, the institution is expected to identify at least annually risks that are material, using its own internal definition of materiality. This risk identification process is expected to result in a comprehensive internal risk inventory.
- (iii) In the case of financial and non-financial participations, subsidiaries, and other connected entities, the institution is expected to identify the significant underlying risks that it is or may be exposed to and take them into account in its ICAAP.
- (iv) For all risks identified as material, the institution is expected either to allocate capital to cover the risk or to document the justification for not holding capital.

### Risk identification process

- 53. The institution is expected to implement a regular process for identifying all material risks and include them in a comprehensive internal risk inventory. Using its internal definition of materiality, it is expected to ensure that the risk inventory is kept up to date. In addition to regular updates (at least yearly), it is expected to adjust the inventory whenever it no longer reflects the risks that are material, e.g. because a new product has been introduced or certain business activities have been expanded.
- 54. The risk identification is expected to be comprehensive and take both normative and economic perspectives into account. In addition to its current risks, the institution is expected to consider in its forward-looking capital adequacy assessments any risks, and any concentrations within and between those risks, that may arise from pursuing its strategies or from relevant changes in its operating environment.
- 55. The risk identification process is expected to follow a “gross approach”, i.e. without taking into account specific techniques designed to mitigate the underlying risks. The institution is then expected to assess the effectiveness of these mitigating actions.
- 56. In line with the EBA Guidelines on limits on exposures to shadow banking entities (EBA/GL/2015/20), the institution is expected to, as part of its risk identification approach, identify its exposures to shadow banking entities, all

potential risks arising from those exposures, and the potential impact of those risks.

57. The management body is responsible for deciding which risk types are to be considered material, and which material risks are to be covered with capital. This includes a justification of why a certain risk the institution is exposed to is not considered material.

## Risk inventory

58. When determining its internal risk inventory, the institution is responsible for defining its own internal risk taxonomy. It is expected not to simply adhere to a regulatory risk taxonomy.
59. In its risk inventory, the institution is expected to take into account the underlying risks, where material, stemming from its financial and non-financial participations, subsidiaries and other connected entities (for example, step-in and group risks, reputational and operational risks, risks stemming from letters of comfort, etc.).
60. In a proportionate way, the institution is expected to look beyond participation risks and identify, understand and quantify significant underlying risks, and take them into account in its internal risk taxonomy, regardless of whether the entities concerned are included in the prudential perimeter or not. The depth of the analysis of the underlying risks is expected to be commensurate with the business activity and the risk management approach.

### Example 4.1: Risk inventory

The risk list and mapping between risk types and risk sub-categories presented in this example are not to be considered mandatory or exhaustive. There may be risks in this list that are not material for some institutions, and this is expected to be explained. At the same time, there will be usually risks not mentioned in the list that are material. Each institution is expected to decide internally whether and how it combines risk types and risk sub-categories.

- Credit risk (including, e.g., country risk, migration risk and concentration risk)
- Market risk (including, e.g., credit spread risk, structural foreign exchange (FX) risk and credit valuation adjustment (CVA) risk)
- IRRBB (including, e.g., repricing risk, yield curve risk and option risk (e.g. from prepayment options))
- Operational risk (including, e.g., business disruption and systems failure, legal risk and model risk)



- Other risks (including, e.g., insurance risk, business risk, step-in risk, pension risk, participation risk, funding cost risk, etc.)

It remains the institution's responsibility to determine all of its material risks, and all concentrations between and within those risks, irrespective of whether they are listed here or not.

#### **Example 4.2: Risk identification under the gross approach**

Under the gross approach, risks are first identified without taking into account specific techniques designed to mitigate them. A risk could be regarded as material if its materialisation, omission or misstatement would significantly change or influence the capital adequacy, profitability, or continuity of the institution from an economic perspective, irrespective of the accounting treatment applied.

For example, an institution may identify that, based on the maturity profile of its banking book, the risks arising from changes in the slope and the shape of the yield curve (yield curve risk) should be considered material.

In this case, the yield curve risk is first expected to be identified, assessed and recorded in the risk inventory without taking into account any management actions designed to mitigate risks. Then, the management body is expected to be responsible for deciding whether the IRRBB (including yield curve risk) is indeed deemed material, and whether it should be covered with capital.

The institution may decide to mitigate the yield curve risk through a combination of derivatives and contractual arrangements, and not to cover the risk with capital. Although it is hedged in this case, the IRRBB is expected to still be considered a material risk and included in the risk inventory, and the institution is expected to assess the effectiveness of these actions and identify any new risks emerging (e.g. legal, counterparty or residual risks).

#### **Example 4.3: Risk identification in the case of a non-financial subsidiary**

Where an institution acts as a parent company for a non-financial subsidiary, the prudential treatment of that subsidiary is based on its risk exposure amounts. In the ICAAP, the institution is expected to establish and apply consistent and coherent processes throughout the group in order to look beyond the accounting values and risk exposure amounts. In particular, the institution is expected to apply proportionate methodologies to identify whether the operations and exposures of the subsidiary pose risks exceeding its accounting value or participation risk.

For example, the institution may identify that the customer profile and investments of a significant subsidiary need to be taken into account in group-level concentration and dependency assumptions. Furthermore, the institution may identify that the legal

risks of the subsidiary add to the operational risk profile of the institution. As a result, the institution may conclude that, through reputational and step-in risks and increased concentration, the underlying risks of the subsidiary significantly exceed its accounting value.

**Example 4.4:**  
**Risk identification in the case of outsourcing**

Where an institution outsources its operations to a service provider, it is expected to be able to identify, assess and quantify the underlying risks in the outsourcing arrangement as if the institution itself still performed the operations. Such identification, assessment and quantification is expected to take place before the outsourcing is implemented, taking into account the specificities connected with having the services performed outside of the institution. In general, the outsourcing of an activity cannot relieve the institution from its obligation to manage the associated risks and thus result in a delegation of responsibility to the outsourcing provider.

## Principle 5 – Internal capital is of high quality and clearly defined

- (i) The institution is expected to define, assess and maintain internal capital under the economic perspective. The definition of internal capital is expected to be consistent with the economic capital adequacy concept and internal risk quantifications of the institution.
- (ii) Internal capital is expected to be of sound quality, and determined in a prudent and conservative manner. The institution is expected to show clearly, assuming the continuity of its operations, how its internal capital is available to cover risks, thereby ensuring that continuity.

### Internal capital definition

- 61. The purpose of internal capital is to serve as a risk-bearing component under the economic perspective. Therefore, the definition of internal capital is expected to be in line with the economic capital adequacy concept of the institution<sup>22</sup> and the definition is expected to follow the fair value considerations of its assets and liabilities. Taking a prudent and conservative approach, the definition is expected to allow the institution to produce a consistent and meaningful assessment of its economic capital adequacy over time, as described under Principle 3.
- 62. The institution is expected to recognise that, owing to different valuation methodologies and assumptions for assets, liabilities and transactions, the available internal capital under the economic perspective may differ significantly from the own funds under the normative perspective. The institution is expected to take a prudent approach when defining its available internal capital. This prudence applies to all underlying assumptions and methodologies used for the quantification of internal capital.
- 63. It is the responsibility of the institution to implement an adequate definition and methodology for its internal capital. This Guide neither prescribes nor restricts the use of any definition or methodology per se. The institution could use, for example, a fully-fledged net present value model, or use the regulatory own funds as a starting point.
- 64. If the institution uses the regulatory own funds as a starting point for its internal capital definition, it is expected that a large part of internal capital components will be expressed in Common Equity Tier 1 (CET1) own funds. In addition, certain adjustments are conceptually necessary to arrive at the capital that is in line with the fair value concept underlying the economic perspective. Adjustments are expected, for example, for hidden losses and for capital items

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<sup>22</sup> Expectations regarding the maintenance of capital adequacy under the economic perspective are introduced under Principle 3.

that have loss-absorption capacity only in the case of non-continuation of the institution.

65. Where the internal capital definition is disconnected from the regulatory own funds, the risk-bearing capacity of the internal capital is still expected to be generally consistent with the loss-absorption capacity of CET1 capital. In particular, institutions applying a model-based net present value approach are expected to only use methodologies and assumptions which are understandable, clearly outlined and justified, and following a prudent approach. Capital items that have loss-absorption capacity only in the case of non-continuation of the institution are expected to be treated as liabilities in such net present value approaches.
66. The Institution is expected to be transparent about its internal capital, enabling a reconciliation between own funds under the normative perspective and available internal capital under the economic perspective insofar as possible.

#### **Example 5.1: Internal capital definition starting from regulatory own funds**

An institution adopting a regulatory definition as a basis for its internal capital determination needs to adjust the regulatory own funds where balance sheet positions do not reflect the fair value concept underlying the economic perspective. For example, the government bond portfolio introduced in Example 3.2, which is subject to a total (net) hidden loss of 100, is expected to result in a deduction of 100 from regulatory own funds.

Such adjustments are expected to be addressed in a consistent way in both the internal capital determination and the risk quantification. The institution could, for example, deduct the hidden loss from both the internal capital and the risk exposure or maintain the amount in the internal capital and quantify the risk as an expected loss. Similarly, if an institution decides to include hidden reserves – which is expected to be done only in a cautious and conservative manner, if at all – the risk exposure is expected to be increased in line with the inclusion of hidden reserves in internal capital.

In general, Tier 2 capital instruments, goodwill, deferred tax assets (DTAs) and all other balance sheet items that cannot be deemed available to cover losses, assuming the continuation of the institution, are expected to be deducted from regulatory own funds. In addition, it is expected to be recognised that equity in subsidiaries held by third parties (minority interests) is generally only able to cover risks within that subsidiary.

**Example 5.2:**

**Internal capital definition based on net present values**

An institution may notice that the fair value of its debt decreases together with a downgrade of its own credit worthiness. It would not be considered prudent for the institution to increase available internal capital accordingly.

## Principle 6 – ICAAP risk quantification methodologies are adequate, consistent and independently validated

- (i) The institution is responsible for implementing risk quantification methodologies that are adequate for its individual circumstances under both the economic and normative perspectives. In addition, the institution is expected to use adequate methodologies for quantifying the potential future changes in own funds and TREA in its adverse scenarios under the normative perspective. The institution is expected to apply a high level of conservatism under both perspectives.
- (ii) The key parameters and assumptions are expected to be consistent throughout the group and between risk types. All risk quantification methodologies are expected to be subject to independent internal validation. The institution is expected to establish and implement an effective data quality framework.

### Comprehensive risk quantification

- 67. The ICAAP is expected to ensure that risks that the institution is or may be exposed to are adequately quantified. The institution is expected to implement risk quantification methodologies that are tailored to its individual circumstances, (i.e. they are expected to be in line with its risk appetite, market expectations, business model, risk profile, size and complexity).
- 68. Risks are not expected to be excluded from the assessment because they are difficult to quantify or the relevant data are not available.<sup>23</sup> In such cases, the institution is expected to determine sufficiently conservative risk figures, taking into consideration all relevant information and ensuring adequacy and consistency in its choice of risk quantification methodologies.<sup>24</sup>
- 69. The key parameters and assumptions cover, inter alia, confidence levels, holding periods, and scenario generation assumptions.

### Level of conservatism

- 70. The risk quantification methodologies and assumptions used under the economic and normative perspectives are expected to be robust, sufficiently stable, risk-sensitive, and conservative enough to quantify losses that occur rarely. In the view of the ECB, in a sound ICAAP the overall level of conservatism under the economic perspective is generally at least on a par with the level underlying the risk quantification methodologies of the Pillar 1 internal

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<sup>23</sup> For risks that are difficult to quantify (e.g. because of missing data or the absence of established quantification methodologies), the institution is expected to develop adequate methodologies to quantify unexpected losses, including using expert judgement.

<sup>24</sup> Risk measurement of difficult to quantify risks has to be consistent and comparable, as far as possible, with overall risk measurement assumptions. The institution is expected to ensure that such risks are appropriately factored into the risk management and risk control processes.

models.<sup>25</sup> Rather than one-by-one, the overall level of conservatism is determined by the combination of underlying assumptions and parameters.<sup>26</sup>

71. Instead of mechanically aiming at external credit rating objectives and statistical confidence levels, the institution is expected to calibrate its risk quantification methodologies on the basis of its own risk appetite. For this purpose, the institution is expected to consider possible losses it is willing and able to absorb over time. Based on this analysis, the institution is expected to establish and maintain risk quantification methodologies, including the assessment of stress events, that provide it with sufficient confidence that possible losses stemming from rare tail events or severe future developments are addressed in its strategies and risk appetite, and that these losses will not exceed the quantified risk.
72. In order to facilitate the comparison between Pillar 1 and ICAAP risk quantifications, regardless of the Pillar 1 approach chosen (e.g. standardised or internal ratings-based (IRB) approach for credit risk), the institution is expected to take into account what is set out in the ECB document “Technical implementation of the EBA Guidelines on ICAAP and ILAAP information collected for SREP purposes”. If there are differences between the two quantifications, the institution is expected to explain the main drivers for them.

### Choice of risk quantification methodologies

73. It is the responsibility of the institution to implement adequate methodologies both to quantify its risks and to determine projections. This Guide does not set out any expectation regarding using or not using any quantification methodology per se. This means that there is no predetermination as to whether, for example, the institution is expected to use (amended) Pillar 1 methodologies (e.g. to take into account concentration risks), economic capital models, stress test results or other methodologies, such as multiple scenarios, to quantify the risks it is or may be exposed to.
74. The methodologies used are expected to be consistent with each other, with the perspective considered and with the definition of capital. They are expected to capture the risks to which the institution is exposed in an adequate and sufficiently conservative manner, taking into account the principle of proportionality. This means, for example, that larger or more complex institutions, or institutions that have more complex risks, are expected to use

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<sup>25</sup> The Pillar 1 capital requirements are, however, not expected to be regarded as a floor in the internal risk quantifications of the institution.

<sup>26</sup> Depending on the risk profile, internal risk parameters could be considered to be more conservative overall than Pillar 1, even if, for example, the confidence level is below 99.9%, subject to the combination of this confidence level with risk factors applied, distribution assumptions, holding periods, correlation assumptions and other parameters and assumptions. Where banks use a range of stress scenarios, coherent methods are expected to be used to integrate them to arrive at an overall level of conservatism that is comparable with, for example, the 99.9% confidence concept when using the economic capital approach.

more sophisticated risk quantification methodologies to capture the risks in an adequate manner.

75. However, the institution is not expected to implement risk quantification methodologies that it does not fully understand and which, consequently, are not used for its own internal risk management and decision-making. The Institution is expected to be able to demonstrate the adequacy of the methodologies for its individual situation and risk profile. In the case of vendor models, this includes the expectation that such models are not expected to be imported mechanically, but rather they are expected to be fully understood by the institution and well-suited for, and tailored to, its business and its risk profile.

## Data quality

76. The institution is expected to deploy adequate processes and control mechanisms to ensure the quality of data.<sup>27</sup> The data quality framework is expected to ensure reliable risk information that supports sound decision-making, and it is expected to cover all relevant risk data and data quality dimensions.

## Risk diversification effects

77. The institution is expected to take a prudent approach whenever assuming risk diversification effects. The Institution is expected to be aware that, in line with the EBA SREP guidelines,<sup>28</sup> supervisors as a matter of principle will not take into account inter-risk diversification in the SREP. The institution is expected to take this into account, and be cautious when applying inter-risk diversification in its ICAAP.
78. The institution is expected to be fully transparent about assumed risk diversification effects and, at least in the case of inter-risk diversification, report gross figures in addition to net figures. The institution is expected to ensure that risks are adequately covered by capital, even in times of stress when diversification effects may disappear or behave in non-linear ways (even reinforcing each other in an extreme scenario).<sup>29</sup>

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<sup>27</sup> Data quality comprises, for example, the completeness, accuracy, consistency, timeliness, uniqueness, validity and traceability of the data. For more information, see the ECB Guide for the Targeted Review of Internal Models (TRIM) of February 2017.

<sup>28</sup> EBA Guidelines on common procedures and methodologies for the supervisory review and evaluation process (SREP) (EBA/GL/2014/13) of 19 December 2014. For more detail, see also the Opinion of the EBA on the interaction of Pillar 1, Pillar 2 and combined buffer requirements and restrictions on distributions (EBA/Op/2015/24) of 16 December 2015.

<sup>29</sup> For example, adding the separately estimated risk components may not be as conservative as often thought, because non-linear interactions may lead to compounding effects. See "Findings on the interaction of market and credit risk", *BCBS Working Paper*, No 16, Basel Committee on Banking Supervision, May 2009.



79. The institution is expected to target diversification effects in its stress-testing framework, involving, for example, intra-risk and inter-risk correlations and diversification between group entities.

## Independent validation

80. ICAAP risk quantification methodologies are expected to be subject to regular independent validation, respecting, in a proportionate way, the principles underlying the respective standards established for Pillar 1 internal models, taking into account the materiality of the risks quantified and the complexity of the risk quantification methodology.
81. Depending on the size and complexity of the institution, various organisational solutions may be adopted to ensure independence between the development and validation of risk quantification methodologies. However, the concepts underlying the various lines of defence are expected to be respected; i.e. the independent validation is expected to not be conducted by the internal audit function.
82. The overall conclusions of the validation process are expected to be reported to senior management and the management body, used in the regular review and adjustment of the quantification methodologies, and taken into account when assessing capital adequacy.

### **Example 6.1: Organisation of independent validations**

In order to ensure the independent and proportionate validation of ICAAP risk quantification methodologies, the institution is expected to take into consideration the ECB Guide for the Targeted Review of Internal Models (TRIM).

Depending on the nature, size, scale and complexity of its risks, the institution may, for example, employ one of the following three organisational arrangements to ensure the independence of the validation function from the methodology development process (i.e. design, development, implementation and monitoring of the risk quantification methodologies):

- separation into two different units reporting to different members of the senior management;
- separation into two different units reporting to the same member of the senior management;
- separate staff within the same unit.

## Principle 7 – Regular stress testing is aimed at ensuring capital adequacy in adverse circumstances

- (i) The ECB expects the institution to perform a tailored and in-depth review of its vulnerabilities, capturing all material risks on an institution-wide basis that result from its business model and operating environment in the context of stressed macroeconomic and financial conditions on a yearly basis and more frequently, when necessary, depending on the individual circumstances. On the basis of this review, the institution is expected to define an adequate stress-testing programme for both normative and economic perspectives.
- (ii) As part of the stress-testing programme, the institution is expected to determine adverse scenarios to be used under the normative perspective, taking into account other stress tests it conducts. The application of severe, but plausible macroeconomic assumptions and a focus on key vulnerabilities are expected to result in a material impact on the institution's internal and regulatory capital, for example with regard to the CET1 ratio. In addition, the institution is expected to conduct reverse stress testing in a proportionate manner.
- (iii) The institution is expected to continuously monitor and identify new threats, vulnerabilities and changes in the environment to assess at least quarterly whether its stress-testing scenarios remain appropriate and, if not, adapt them to the new circumstances. The impact of the scenarios is expected to be updated regularly (e.g. quarterly). In the case of material changes, the institution is expected to assess their potential impact on its capital adequacy over the course of the year.

### Determination of the stress-testing programme

83. The stress-testing programme is expected to cover both the normative and the economic perspective.<sup>30</sup> When defining the set of internal stress scenarios and sensitivities, the institution is expected to use a broad set of information on historic and hypothetical stress events, including supervisory stress tests. However, although it is expected to take supervisory stress tests into consideration, it is the institution's own responsibility to define scenarios and sensitivities in the manner that best addresses its individual situation and to translate them into risk, loss and capital figures.

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<sup>30</sup> Stress-testing activities under the economic perspective are not expected to be multi-year scenario projections, as explained under Principle 3.

## Severity level of adverse scenarios<sup>31</sup> under the normative perspective

84. In its baseline assessment, the institution is expected to assume developments that it would assume under expected circumstances, taking into account its business strategy, including credible assumptions regarding revenues, costs, risk materialisations, etc.
85. In adverse scenarios under the normative perspective, the institution is expected to assume exceptional, but plausible developments with an adequate degree of severity in terms of their impact on its regulatory capital ratios, in particular the CET1 ratio. The level of severity is expected to correspond to developments that are plausible, but as severe from the institution's perspective as any developments that could be observed during a crisis situation in the markets, factors or areas that are most relevant for the institution's capital adequacy.
86. The range of adverse scenarios is expected to adequately cover severe economic downturns and financial shocks, relevant institution-specific vulnerabilities, exposures to major counterparties, and plausible combinations of these.

## Coherence versus targeting key vulnerabilities

87. In stress testing, the institution is expected to focus on its key vulnerabilities when attempting to define plausible adverse scenarios.
88. ICAAP and ILAAP stress tests are expected to inform each other; i.e. the underlying assumptions, stress test results and projected management actions are expected to be mutually taken into account.

## Reverse stress testing

89. In addition to stress-testing activities that assess the impact of certain assumptions on capital ratios, the institution is expected to conduct reverse stress-testing assessments. These assessments are expected to start from the identification of the pre-defined outcome (e.g. a breach of its TSCR or management buffers).
90. Such reverse stress tests are expected to be used to challenge the comprehensiveness and conservatism of the ICAAP framework assumptions, under both the normative and the economic internal framework. Moreover, reverse stress testing in the ICAAP context could be seen as a starting point for

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<sup>31</sup> The number of scenarios that is adequate for an institution depends on, among other things, its individual risk profile. It is expected that several adverse scenarios will usually be necessary to adequately reflect the different plausible combinations of risks.

developing recovery plan scenarios.<sup>32</sup> Reverse stress tests are expected to be conducted at least once a year. More details can be found in the relevant EBA guidelines and BCBS guidance.

**Example 7.1:**

**Interaction between ICAAP and ILAAP stress tests**

The institution is expected to assess the potential impact of relevant scenarios, integrating capital and liquidity impacts and potential feedback loops, taking into account, in particular, losses arising from the liquidation of assets or increases in funding costs during periods of stress.

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<sup>32</sup> As outlined in the EBA Guidelines on the range of scenarios to be used in recovery plans (EBA/GL/2014/06), these scenarios are expected to be only “near-default”, i.e. they are expected to lead to an institution’s or group’s business model becoming non-viable unless the recovery action is successfully implemented.

## 3 Glossary

### **Adverse scenario**

A combination of assumed adverse developments in internal and external factors (including macroeconomic and financial developments) that is used to assess the resilience of the capital adequacy of the institution to potential adverse developments over a medium-term horizon. It is expected to cover at least three years. The assumed developments in internal and external factors are expected to be combined in a consistent way and be severe but plausible from the institution's perspective, reflecting the risks and vulnerabilities that are assessed as representing the most pertinent threats to the institution.

### **Baseline scenario**

A combination of expected developments in internal and external factors (including macroeconomic and financial developments) that is used to assess the impact of those expected developments on the capital adequacy of the institution over a medium-term horizon. The baseline scenario is expected to be consistent with the basis of the institution's business plans and budget, and cover a time horizon of at least three years.

### **Capital adequacy statement**

A formal statement from the management body providing its assessment of the capital adequacy of the institution and explaining its main supporting arguments.

### **Capital adequacy**

The degree to which risks are covered by capital. The ICAAP is aimed at maintaining adequate capitalisation on an ongoing basis, from both the economic and normative perspectives, contributing to the continuity of the institution over the medium term.

### **Capital planning**

A multidimensional internal process resulting in a capital plan presenting a multi-year projection of capital demand and supply of the institution, taking into account its scenarios, strategy and operational plans.

### **Diversification effect**

A reduction in the overall risk quantification of an institution stemming from the assumption that individually estimated risks will not materialise to the full extent at the same time (lack of perfect correlation).

### **Economic capital adequacy concept**

An internal concept aimed at ensuring under the economic perspective that the financial resources (internal capital) of the institution will enable it to cover its risks

and maintain the continuity of its operations on an ongoing basis. Economic capital adequacy takes into account fair value considerations.<sup>33</sup>

### **Economic internal perspective**

An ICAAP perspective under which the institution manages its economic capital adequacy by ensuring that its economic risks are sufficiently covered by available internal capital.

### **Expected and unexpected losses**

The expected loss is the statistical mean loss the institution expects over a given period of time. The unexpected loss is the total loss exceeding the mean loss, stemming from a downside tail event.

### **Gross approach in risk identification**

The gross approach means that risks are first identified without taking into account specific actions designed to mitigate them.

### **Hidden losses and reserves**

Valuation differences between accounting values and fair values of balance sheet positions.

### **ICAAP architecture**

Different elements of the ICAAP and how they interlink. The ICAAP architecture is expected to ensure that the different elements of the ICAAP fit together coherently and that the ICAAP is an integral part of the institution's overall management framework. The institution is expected to maintain, as part of its ICAAP documentation, a description of the overall ICAAP architecture which explains how the ICAAP is integrated and how its outcomes are used in the institution.

### **ICAAP outcomes**

Any information that results from the ICAAP and adds value to decision-making.

### **ICAAP**

The internal capital adequacy assessment process as defined in Article 73 CRD IV: "Institutions shall have in place sound, effective and comprehensive strategies and processes to assess and maintain on an ongoing basis the amounts, types and distribution of internal capital that they consider adequate to cover the nature and level of the risks to which they are or might be exposed."

### **Internal review and validation**

Internal review covers a broad range of controls, evaluations and reports aimed at ensuring that ICAAP strategies, processes and methodologies remain sound, comprehensive, effective and proportionate.

Validation, as part of the internal review, encompasses processes and activities assessing whether the risk quantification methodologies and risk data of the

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<sup>33</sup> Note: It is the responsibility of the institutions themselves to implement adequate risk quantification methodologies – there is no general expectation that institutions will utilise "economic capital models" to ensure economic capital adequacy.

institution adequately capture relevant aspects of risk. In a proportionate way, the validation of risk quantification methodologies is expected to be conducted independently and respect the principles underlying the respective standards established for Pillar 1 internal models.

#### **Limit system**

A documented and hierarchical system of limits set in line with the overall strategy and risk appetite of the institution in order to ensure that risks and losses can be limited effectively in line with the capital adequacy concept. The limit system is expected to lay down effective boundaries for risk taking for, for example, different risk types, business areas, products and group entities.

#### **Management buffer**

An amount of capital above the regulatory and supervisory minima and internal capital thresholds that the institution considers necessary in order to sustainably follow its business model and to remain flexible regarding possible business opportunities, without endangering its capital adequacy.

#### **Material risk**

A capital-related downside risk that, based on the institution's internal definitions, has a material impact on its overall risk profile, and thus may affect the capital adequacy of the institution.

#### **Medium-term time horizon**

A time horizon which captures the near and medium-term future. It is expected to capture the capital position over at least the upcoming three years.

#### **Normative internal perspective**

A multi-year ICAAP perspective under which the institution manages its capital adequacy by ensuring that it is able to fulfil all of its capital-related legal requirements and supervisory demands and cope with other internal and external capital constraints on an ongoing basis.

#### **Proportionality**

A principle in Article 73 CRD IV which states that the ICAAP shall be proportionate to the nature, scale and complexity of the activities of the institution concerned.

#### **Recovery plan**

A plan drawn up and maintained by an institution in accordance with Article 5 of the Bank Recovery and Resolution Directive (BRRD).<sup>34</sup>

#### **Reverse stress test**

A stress test which starts from the identification of the pre-defined outcome (e.g. the point of non-viability) and then explores scenarios and circumstances that might cause that outcome to occur.

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<sup>34</sup> Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of credit institutions and investment firms and amending Council Directive 82/891/EEC, and Directives 2001/24/EC, 2002/47/EC, 2004/25/EC, 2005/56/EC, 2007/36/EC, 2011/35/EU, 2012/30/EU and 2013/36/EU, and Regulations (EU) No 1093/2010 and (EU) No 648/2012, of the European Parliament and of the Council (OJ L 173, 12.6.2014, p. 190).

**Risk appetite statement**

A formal statement in which the management body expresses its views on the amounts and types of risk that the institution is willing to take in order to meet its strategic objectives.

**Risk horizon / holding period**

The assumed period of time over which the risk is assessed.

**Risk identification process**

A regular process the institution uses to identify risks that are or might be material for the institution.

**Risk inventory**

A list of identified risks and their characteristics. The risk inventory is the result of the risk identification process.

**Risk quantification**

The process of quantifying identified risks by developing and using methodologies to determine risk figures and enable a comparison between the risks and the available capital of the institution.

**Risk taxonomy**

A categorisation of different risk types/factors enabling the institution to assess, aggregate and manage risks in a consistent way through a common risk language and mapping.



## Abbreviations

<b>AT1</b>	Additional Tier 1	<b>MDA</b>	Maximum distributable amount
<b>BCBS</b>	Basel Committee on Banking Supervision	<b>MREL</b>	Minimum requirement for own funds and eligible liabilities
<b>BRRD</b>	Bank Recovery and Resolution Directive	<b>NCA</b>	National competent authority
<b>CAS</b>	capital adequacy statement	<b>OCR</b>	Overall capital requirement (TSCR+CBR)
<b>CBR</b>	combined buffer requirement	<b>P1R</b>	Pillar 1 capital requirement
<b>CET1</b>	Common Equity Tier 1	<b>P2G</b>	Pillar 2 capital guidance
<b>CRD IV</b>	Capital Requirements Directive	<b>P2R</b>	Pillar 2 capital requirement
<b>CVA</b>	Credit valuation adjustment	<b>RAF</b>	Risk appetite framework
<b>DTA</b>	Deferred tax assets	<b>SI</b>	Significant institution
<b>EBA</b>	European Banking Authority	<b>SREP</b>	Supervisory Review and Evaluation Process
<b>ECB</b>	European Central Bank	<b>SSM</b>	Single Supervisory Mechanism
<b>FSB</b>	Financial Stability Board	<b>TREA</b>	Total risk exposure amount
<b>ICAAP</b>	Internal capital adequacy assessment process	<b>TRIM</b>	Targeted Review of Internal Models
<b>ILAAP</b>	Internal liquidity adequacy assessment process	<b>TSCR</b>	Total SREP capital requirement (P1R+P2R)
<b>IRB</b>	Internal ratings-based		
<b>IRRBB</b>	Interest rate risk in the banking book		
<b>LSI</b>	Less significant institution		

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