

# **What's past is prologue: Expectations from 2021 ICAAPs**

**October 2020**



## THE AUTHOR



**Nathanael Sebbag**

Associate Partner  
Avantage Reply France

Mobile: +33 (0)6 29 47 16 10

Mail: [n.sebbag@reply.com](mailto:n.sebbag@reply.com)

Nathanaël is an Associate Partner of Avantage Reply (France). He has twelve years of experience in banking and started his career as a derivatives trader. For the past ten years, he has specialized in Risk, Finance and ALM.

He has notably assisted banks in developing and implementing RAF, ICAAP, ILAAP, RRP, Solvency and liquidity stress testing frameworks but also ALM and Liquidity management and measurement frameworks in line with evolving supervisory requirements and industry best practices. Besides, he has a strong knowledge of regulatory and supervisory packages and has designed and implemented number of remediation plans. Finally, he has worked for both European and French SFIs and LSIs and has a good vision of market practices.

He holds the Financial Risk Manager professional qualification (FRM, GARP) and the ALM professional qualification from the ALM French association (AFGAP).



**Seynabou Tall**

Senior Consultant  
Avantage Reply France

Mobile: +33 (0)6 34 78 34 82

Mail: [s.tall@reply.com](mailto:s.tall@reply.com)

Seynabou is a Senior Consultant at Avantage Reply France and works on strategy and management consulting assignments on Risk, Finance and ALM / Treasury issues.

She has 4.5 years of experience in the banking industry. She has acquired a solid experience in banking regulations, in particular on the design of ICAAP Capital Management system, Model Risk Management and the development of recovery plan.



**Ismaïl Laabdi**

Senior Consultant  
Avantage Reply France

Mobile: +33 (0)6 34 78 84 12

Mail: [i.laabdi@reply.com](mailto:i.laabdi@reply.com)

Ismaïl is a Senior Consultant with Avantage Reply and has 4.5 years of experience in the banking industry.

He has solid experience in CRR / CRD4 banking regulations acquired on assignments relating to the design and implementation of regulatory reporting (COREP, Large exposures, etc.) as well as modelling and risk management with a strong focus on risk credit and liquidity.

He is preparing the Professional Risk Manager qualification (PRM, PRMIA).



# OVERVIEW

## Context

Since the establishment of the Single Supervision Mechanism (SSM) under the European Central Bank's (ECB) mandate, banks directly supervised by the ECB are required to submit an Internal Capital Adequacy Assessment Process (ICAAP) package on an annual basis. This submission is aimed at demonstrating the robustness of banks' internal processes in relation to the identification, assessment and measurement of their risk profile and the availability of sufficient capital to support their risk profile. It must be noted, however, that ICAAPs are not merely intended to be external-focused, regulatory submissions; they are inherently a bank's internal assessment of its risk profile, aimed at facilitating sound decision-making. Practices in relation to ICAAPs vary across Europe: While they have been abandoned in certain countries (e.g. French banks), other countries have "industrialised" the ICAAP development process (e.g. northern European countries). Irrespective, the ICAAP is an internal strategic process for many institutions that have invested heavily in recent years to strengthen their governance, their models and included the ICAAP in strategic decision-making processes.

## Background to this briefing note

At the end of 2018, ECB published a guide to the ICAAP, aiming to help banks better understand supervisory expectations through a framework of 7 principles. Leveraging on its experience as a direct supervisor and Joint-Supervisory Teams (JST) feedback, the ECB undertook an in-depth assessment of banks' practice against these principles for a sample of 37 banks and published its findings in August 2020. In this report, the ECB shares the outcomes of this analysis acknowledging that while banks have made significant improvements in their ICAAPs there are several key areas where banks have significant room for improvement, principal among them being:

- **Economic ICAAP perspective:** The ECB notes that the implementation of the economic ICAAP perspective remains inadequate in a number of areas. In fact, the economic perspective concept remains unclear for number of institutions being not necessarily consistent with the continuity approach. Challenges in relation to the determination of internal capital and conservative quantification of key material risks remain and the use of economic perspective in decision-making remains limited.
- **Stress testing:** The ECB notes that many banks are not conservative enough in their scenario design and calibration as the review process remains partial. Another area of improvement relates to banks' ad hoc stress-testing capabilities; deficiencies in these capabilities can impact banks' ability to anticipate and respond to potential stress situations. Finally, the lack of integration of stress-testing and poor delineation of roles and responsibilities between Risk and Finance functions remains a source of concern.
- **Data quality:** The ECB notes that the underlying data quality for ICAAP analysis remains poor; many banks show material deficiencies in this key area and it poses a clear threat to banks' continuity.

This Avantage Reply briefing note aims to discuss the key outcomes of ECB's report and is broken down into three complementary parts, seeking to answer to the following questions for each of 7 principles:

1. What are the main outcomes of ECB's analysis?
2. What are the sound practices mentioned by the ECB?
3. What is our opinion on these observations based on our experience of market practices?



# KEY FINDINGS AND OBSERVATIONS

In this section, we focus our analysis, trying to highlight the practical findings of the ECB on each of the 7 principles, on our practical experience gained in several European banks.XXXX

## 1. Principle 1: ICAAP Governance

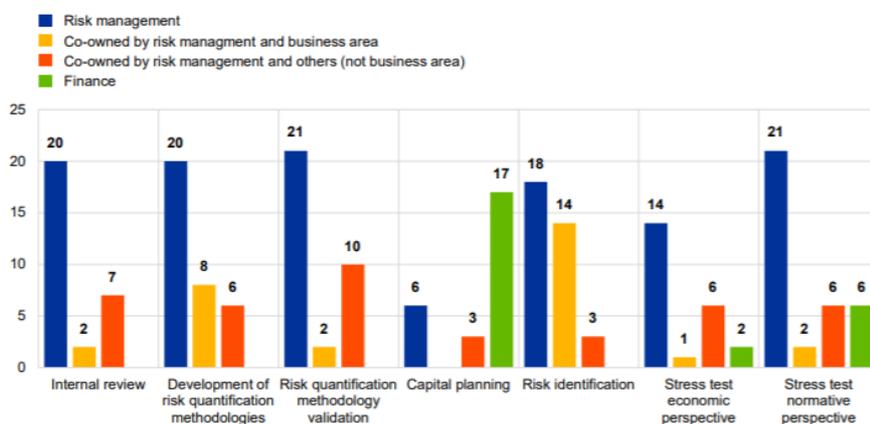
This Principle focuses on the main governance arrangements associated to the ICAAP, including content and components of the Capital adequacy Statement ('CAS'); the ownership and the involvement of the senior management within the ICAAP process; and, the roles and responsibilities of the risk and finance functions.

### a. Key outcomes of ECB's report

While banks have understood the concept of the CAS which is now fully integrated in the ICAAP Package, it varies considerably from one bank to another in terms of contents, format and approval by the management body. In terms of format, on average, the CAS is around 22 pages long and only signed by all members of the management body at one in three banks. While the clear majority of banks elaborate on major changes in their ICAAP as well as key stress-testing activities and conclusions, over half of the banks do not elaborate on ICAAP key metrics (e.g. risk figures, risk limits), the main weaknesses of the ICAAP and how they are being addressed.

In many banks, the regular internal review (including validation of risk quantification methodologies) of the ICAAP does not follow a clear allocation of responsibilities between and within the three lines of defence. Besides, **in a number of banks, no ownership is assigned to the risk management function for key ICAAP areas such as risk identification or quantification.** Indeed, the ECB study shows that banks have mostly understood the concept of identifying the owners of key ICAAP components, as shown in Figure 1. However, for some banks, this **ownership of key ICAAP components is unclear and still has to be clarified.**

Figure 1:Ownership of selected key ICAAP areas by internal functions (source ECB)





banks in the sample mainly identified the Risk Management teams as being the owner of most key ICAAP subjects except capital planning, which for the most part belongs to the Finance teams. On the other hand, Risk Identification area is co-owned by risk management and business area.

**b. Sound practices identified by the ECB**

As part of this report, the ECB has decided to share several sound practices related to ICAAP governance. They are presented in the table below.

<i>Principle</i>	<i>Themes</i>	<i>Good practices</i>
<i>ICAAP Governance</i>	<b>CAS</b>	<ul style="list-style-type: none"> <li>• The CAS should present the capital adequacy assessment concisely</li> <li>• It should highlight key ICAAP weaknesses and its impacts on the assessment of capital adequacy.</li> <li>• It should reflect the ownership and the involvement by the senior management through several signatures of members of the management body</li> </ul>
	<b>ICAAP Validation</b>	<ul style="list-style-type: none"> <li>• Banks should establish an independent internal validation unit.</li> <li>• ICAAP should be reviewed on a yearly basis in terms of the quantitative and qualitative aspects, including roles and responsibilities.</li> </ul>

**c. Our analysis put in perspective to market practices**

We note that banks have made significant progress in recent times, strengthening their governance around internal stress testing and expanding the role and mandate of capital management committees. Besides, from an organizational point of view, the roles and responsibilities of the Risk Management and Finance functions in the ICAAP process are generally clearly established and consistent with the size and complexity of the bank.

The ICAAP review and challenge process has matured within many institutions, with both the Management Committee and the Board actively involved. Nevertheless, we note that the ICAAP process is not (or partially) carried by Senior Management who do not always perceive its usefulness in the strategic planning process. In addition, there are still many areas for improvement in the integration of ICAAP into the internal control system (3 lines of defence).

For example, the Model Risk Management (MRM) or independent model validation functions only partially cover the qualitative or even quantitative dimension of the ICAAP. Finally, while the quality of the banks' CAS has clearly improved, there are still areas for possible improvement regarding the demonstration of the ownership and the involvement of the senior management within the ICAAP process.

**2. Principle 2: ICAAP Integration**



This section focuses on the Principle 2 covering ICAAP integration into overall management framework. It notably focuses on the content and components of the Capital adequacy Statement ('CAS'); the ownership and the involvement of the senior management between the ICAAP and other strategic processes; and; the use of the ICAAP for decision-making.

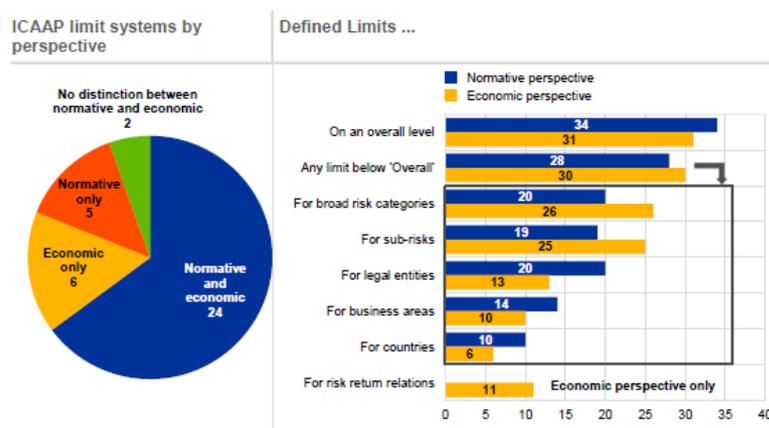
### a. Key outcomes of ECB's report

Regarding the overall architecture of ICAAP, the ECB notes that it is well-implemented in a majority of banks (35 banks out of 37) even though the maturity level varies between banks. Some key observations are listed below:

- Majority of banks use the ICAAP for the strategic planning process, for monitoring and for determining the capital allocation and on the integration of the risk appetite statement (RAS) and management reporting into the ICAAP architecture;
- Two third elaborate on how the ICAAP outcomes are used for decision-making and around half of the banks do so for the connection between the ICAAP and the ILAAP;
- Few banks have integrated the use of ICAAP into processes such as pricing of products or deriving variable remuneration components;

Regarding the ICAAP limit framework, most banks use it for risk monitoring and reporting from normative and economic perspectives. Generally, banks define ICAAP limit systems in an overarching way for capital adequacy but do **not have more granular limits for legal entities or business areas**. Besides, limit framework at the level of broader risk categories is more established under the economic perspective than under the normative perspective. Another important point mentioned is **the limited use of the ICAAP for managing the relationship between risk and return** which is reflected in the fact that only every fourth bank sets limits to manage this relationship. The following figure summarises how ICAAP limit frameworks are established on the overall sample of banks.

Figure 2: ICAAP limit systems by perspective and level of granularity (source ECB)



Most of banks report ICAAP-related information **on a quarterly basis** at the level of **Finance and Risk departments** and to **the management body only on an annual basis**. Under the normative perspective, CET1 and Leverage ratios are declared by most banks in current and forward-looking views whereas few banks declare in forward looking view information relative to MREL or NPL ratio or management buffers. Under the economic perspective, a large majority of banks regularly report both the overall economic capital adequacy ratios as well as the aggregated economic risk amount



### b. Sound practices identified by the ECB

As part of this report, the ECB has decided to share several sound practices related to ICAAP integration that it identified during these investigations. They are presented in the table below:

<i>Principle</i>	<i>Themes</i>	<i>Good practices</i>
<i>ICAAP Integration</i>	<b>Architecture</b>	The ICAAP architecture could be describe in a well-structured document independent from the ICAAP and presenting direct references to other documents (notably the interactions with other internal processes).
	<b>Limit systems</b>	Banks could use a traffic light for certain indicators to provide an overview of the current level and the distance from other tolerance thresholds.
	<b>Reporting</b>	Banks could develop an approach to increase reporting frequency and granularity based on risk materiality and potential changes.

### c. Our analysis put in perspective to market practices

Although this differs from one country to another and especially according to the size and the complexity of the bank, the integration of the ICAAP with other strategic processes remains fragmented.

In many institutions, it is natural to make the ICAAP interact with the capital management framework, whether in terms of capital planning (baseline or stressed) or capital allocation policy. From our experience, many banks try to better integrate the outcomes of the economic approach and / or the normative approach with the calibration of the thresholds of the RAS metrics and in the scripting of the capital trajectories.

While we note that they are usually mentioned in context of strategic planning, ICAAPs are only very partially (if at all) integrated into strategic decision-making, product pricing and variable compensation components. In terms of industry leading practices, some firms consider the ICAAP within the timelines and key stages of the budgeting process for a proper integration into strategic planning. This implies, for example, that the stress tests of the normative approach are built in order to assess the deviations of the trajectories in P&L and RWA over a horizon of 3 in line with the medium-term plan. It also involves scripting various trajectories of solvency ratios to assess, for example, the investment capacity in terms of mergers / acquisitions or in terms of new production or collection of outstanding amounts. For one of the more mature banks, it aligned the ICAAP exercise to capital allocation and risk/return trade-off assessments. Nonetheless, this is not a widely adopted practice.

When it comes to integrating the ICAAP into management processes, the most mature banks develop and calibrate management indicators to assess the ability to meet minimum regulatory requirements in various stressed environments but also to assess their internal capital adequacy to most material Pillar 2 risks. Whether they are indicators evaluating



the surplus of capital resources or specific risks, they are either constructed at the global level or broken down to finer levels within certain business activities.

Banks continue to make efforts to industrialise underlying ICAAP models and to align outcomes with other business units (for example, to set up the allocation policy). In addition, significant investments in terms of supporting infrastructure are being contemplated to improve the quality of data and streamline the ICAAP production process.

When talking about an integrated economic capital allocation policy, an efficient approach relies on the internal ('economic') capital allocation approach to assess the proper circulation of capital compared to the regulatory capital allocation.

Hereafter is described an illustration of market practices regarding capital allocation approaches.

#### French banks and some European banks

- > Capital allocation based on RWA used both for internal steering and external communication
- > Current practice relies on allocating the RWAs of each business weighted at CET1 target level as defined in the strategic plan (minus a part of management buffer) and adding specific add-on including the goodwill and intangibles or specific capital buffer.

$$\boxed{\text{RWAs}} \times \boxed{\text{Target CET1 ratio}} + \boxed{\text{Add-on}}$$

- > Ongoing initiative to implement based on ICAAP's outcomes:
  - > Inclusion of the outcomes internal stress tests for one large bank
  - > Inclusion of the outcomes of economic approach for a large CIB

Pros	Cons
<ul style="list-style-type: none"> <li>• Easy to use</li> <li>• Transparency</li> <li>• Applied at all levels of the organization.</li> <li>• Business line returns can also be aligned easily with the banks' overall RoE target</li> </ul>	<ul style="list-style-type: none"> <li>• Complexity can however arise when banks operate across multiple jurisdictions, where the regulatory capital rules for calculating RWAs differ</li> <li>• Uncomplete risk coverage (notably Pillar 2 risks)</li> <li>• Diversification not taken into account</li> </ul>

#### European banks

- > A number of banks are using a capital allocation policy based on economic capital mainly for internal steering and not necessarily for external communication
- > Over the past years, the ICAAP has been improved and better integrated in banks' steering processes in a number of European banks while it has been set aside by most of french banks
- > No best practices have emerged regarding economic capital allocation approaches and are often tailor-made depending institutions". Hereafter some examples
  - > Activity based method (e.g. allocate the joint capital to the portfolio elements in proportion to their own risk...)
  - > Marginal Analysis by BU or Incremental by BU
  - > Apply co-measure: allocating capital in an additive manner
  - > ...

Pros	Cons
<ul style="list-style-type: none"> <li>• Enlarged risk coverage (notably Pillar 2 risks)</li> <li>• Diversification taken into account</li> </ul>	<ul style="list-style-type: none"> <li>• Senior management appetite and level of mastery on economic approaches</li> <li>• Difficulties to find an unique and internal view of tolerance threshold level</li> <li>• Challenges to assess the probability of some scenarios</li> <li>• Lack of granularity</li> </ul>



### 3. Principle 3 : ICAAP Perspectives

This section focuses on the Principle 3 covering ICAAP perspectives, more specifically on the normative and economic approaches and the interactions between these two perspectives.

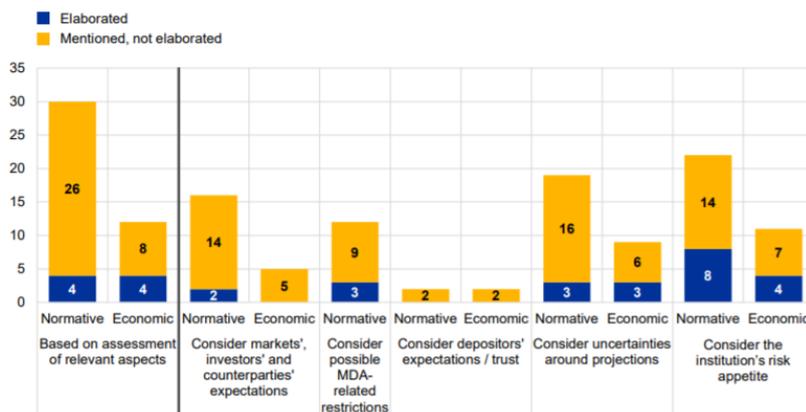
#### a. Key outcomes of ECB's report

While banks have been working on developing and improving their assessment and modelling capabilities, there remains room for improvement in relation to the normative and economic perspectives, with particular attention required for the latter. Three out of four banks have implemented an elaborated normative ICAAP perspective, while less than half have been able to implement the economic perspective. While the normative perspective follows a continuity approach by nature, this objective **is not clearly spelled out under the economic perspective** by one in three banks as it remains also an area of improvement consistent with level of maturity of this perspective within banks.

When considering **the management buffer concept**, it is observed to most banks in the sample assess it under the normative approach as the concept is more understandable than if considered for the economic approach. Only slightly more than half of the banks have defined **some kind of internal minimum capital threshold under the economic perspective**.

With regard to the way management buffers/internal minimum capital thresholds are derived, under each perspective, only one in ten banks has a relatively elaborate approach. In practice, most of banks have developed rudimentary assessments established through different considerations as highlighted in the following figure.

Figure 3: Considerations underlying management buffers (source ECB)



For the two approaches, the banks have mainly constituted their **management buffer in line with the aspects related to risk appetite or uncertainties of projections**. For the normative approach, these management buffers are mostly expressed in terms of CET 1 ratios, in total own funds or MREL, while in the economic perspective, banks tend to calculate the management buffer taking into account the relationship between internal capital and economic risks. Aspects related to depositors' expectations, markets investors and counterparties are not fully considered under the economic approach.



Regarding capital planning, all the banks are carrying it out under the normative perspective as **only half of the sample take into account the economic perspective** with a time horizon ranging between 3 to 5 years. Banks generally take legal changes or operating environment changes into account in capital planning. Equally, number of adverse **scenarios used for capital planning** was considered to be insufficient.

The mutual information concept which refers to how the normative and the economic perspectives of the ICAAP inform and influence each other **remains as an area of improvement**. The risks considered under the economic perspective are considered under the normative perspective in an appropriate manner only by one in ten banks. Moreover, for one-third of the banks, this aspect of the **mutual information concept is not considered at all**. For example, the losses identified in the economic approach are rarely studied in order to define their impacts from a normative perspective.

The heterogeneity between capital utilisation rates under the two ICAAP perspectives shows that in terms of managing capital adequacy, managing it **under just one perspective does not generally ensure capital adequacy from the other perspective**. It is a source of concern that the role of the economic perspective in decision-making is **underdeveloped**, not just in strategic capital management but in banks' management frameworks overall.

#### b. Sound practices identified by the ECB

As part of this report, the ECB has shared several sound practices related to ICAAP perspectives:

<i>Principle</i>	<i>Themes</i>	<i>Good practices</i>
<i>ICAAP Perspectives</i>	<b>Mutual Information</b>	Implementing processes for analysing the potential impact of economic risks under the normative perspective and vice versa
	<b>Capital Planning</b>	Full transparency regarding management actions considered in capital planning and stress-testing (for example, quantitative impact of individual actions under different scenarios and perspectives)
	<b>CAS</b>	Presenting in the CAS impacts of the capital projections in the Pillar 1 under each baseline and adverse normative perspective scenarios
	<b>Capital Adequacy</b>	Presenting impacts of scenarios and other assumptions (e.g. business growth, dividend policy...) used under the normative perspective projections on economic capital adequacy to inform management actions accordingly



### c. Our analysis put in perspective to market practices

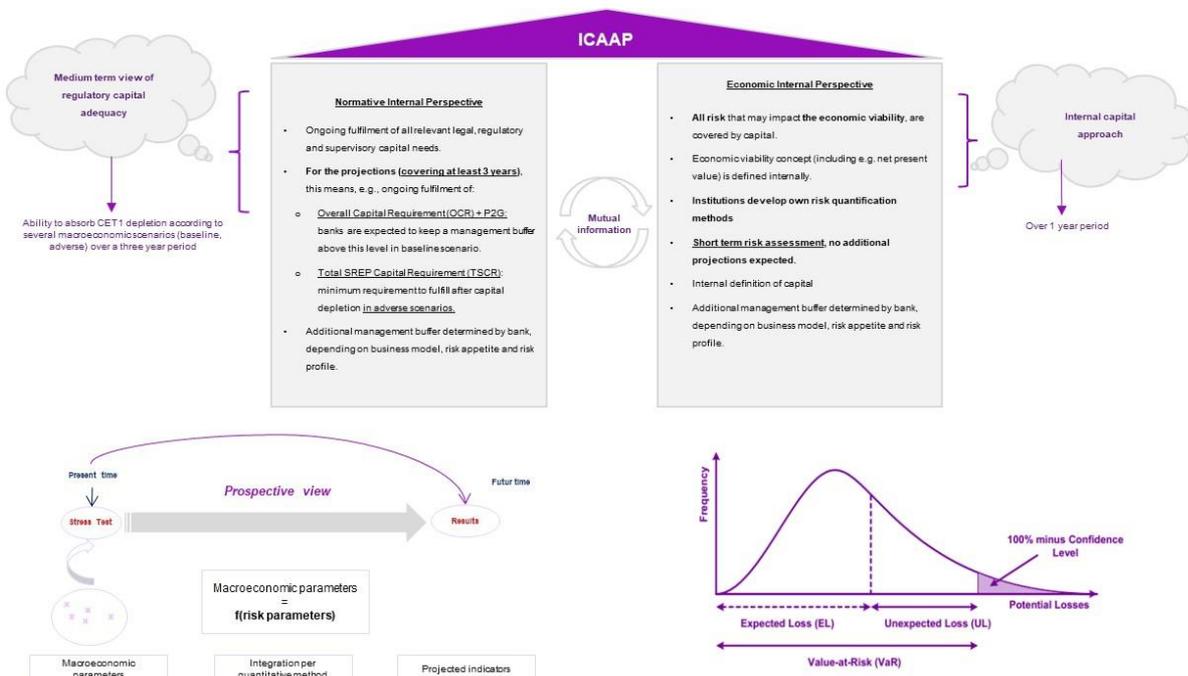
Regarding the implementation of the two ICAAP perspectives, there is room for improvement under both the normative as well as the economic perspective, with particular attention required for the latter. Many banks still either have not fully elaborated the economic perspective or do not explicitly follow a continuity approach under this perspective.

Generally, the capital plans do look ahead at least three years. However, in many banks, deficiencies are apparent, for example, with regard to the consideration of upcoming changes in the legal, accounting, or regulatory frameworks and to the number and severity of adverse scenarios that are assessed.

Furthermore, the assessment of capital adequacy from an economic perspective in a forward-looking manner over the medium term and the consideration of the insights gained from such assessments into the capital planning under the normative perspective and strategic decision-making are not well established.

Another area where improvement is warranted under both perspectives is the internal definition of minimum capital adequacy thresholds. In many cases, these thresholds are still based on management's intuition, rather than on a thorough assessment of the aspects that are relevant for a bank to sustainably follow its strategy. Further sources of concern are the lack of mutual information between the normative and economic perspective, for example potential losses stemming from material risks under the economic perspective are often not systematically translated into profit and loss (P&L)/balance sheet.

The following picture describes the ICAAP tree putting in perspective the two ICAAP perspectives.





## 4. Principle 4: Risk identification

This section focuses on the Principle 4 covering the risk identification process and more specifically the key underlying components such as the risk inventory and assessment approach, frequency and its interactions with the ICAAP process. It also includes a focus on materiality concepts and a deep dive on climate risk.

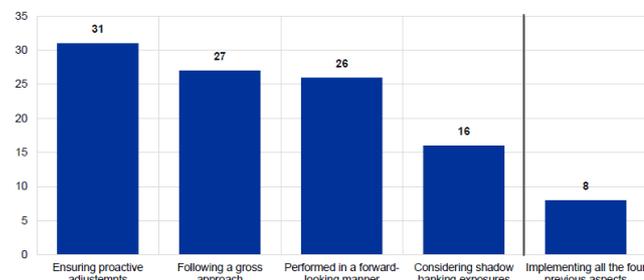
### a. Key outcomes of ECB's report

All banks in the sample identify their capital-related risks **on an annual basis** risk identification process as a few banks do it bi-annually or quarterly. However, the maturity of the process vary from one bank to another as:

- One in three banks has no appropriate process in place for identifying risks in a forward-looking manner at all.
- One in five banks does not systematically assess risks in a proactive manner (ex: before launching new products)
- Around two-thirds of the banks follow a gross approach in their risk identification

Taking a step back on the different processes, in the sample of banks analysed, only one in five banks identifies its risks following the four aspects below:

Figure 4: Key features of bank's risk identification processes (source ECB)



The concept of materiality is an **area of improvement for some banks** whether it is a qualitative or a quantitative risk assessment. It is also interesting to mention that several banks **distinguish the materiality concept** between the normative and the economic perspectives. While the granularity of bank's risk taxonomies is very heterogeneous, overall, banks identify, on average, 29 (sub-) risk categories as being material and typically quantify 11 risks separately.

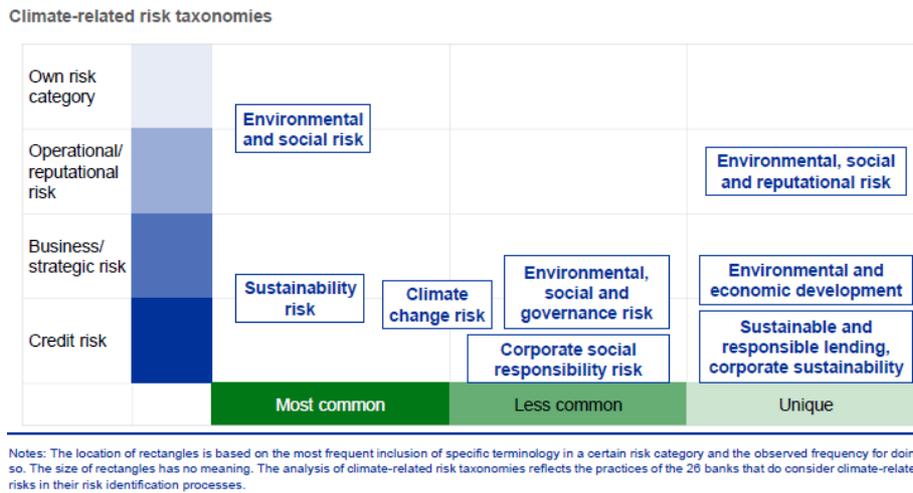
Figure 5: number of risk subcategories that are considered (source ECB)

Number of risk sub-categories considered as material	MIN	10% Percentile	Average	90% Percentile	MAX
Credit risk	1	4	8	11	15
Market risk	0	2	6	10	12
Operational risk	1	1	7	14	15
IRRBB	0	1	3	5	8
Other risks	0	1	6	10	14



While two-thirds of banks list climate risk in their risk inventory, only 8 out of 37 consider it to be material. Depending on the banks, climate risk can be included in different risk families as described in the different clusters described below.

Figure 6: observed clustering with other risks in risk taxonomies and inclusion in risk types (source ECB)



### b. Sound practices identified by the ECB

As part of this report, the ECB has decided to share several sound practices related to risk identification process that have been identified during these investigations:

Principle	Themes	Good practices
Risk identification process	<b>Forward-looking</b>	Risk materiality assessment could be conducted with a forward-looking view to better consider the evolution of the bank's business plan.
	<b>Re-assessing materiality</b>	A dedicated and more frequent Risk ID process (bi-annual or quarterly ) to reassess the materiality of risks could be appropriate in the light of evolving changes in its business activities and operating environment
	<b>Risk id. Approach</b>	A combination of a top-down and bottom-up approach in the risk identification process could be helpful to combine to top-down 'macro view' compared to bottom-up 'more in the field' view.



### **c. Our analysis put in perspective to market practices**

The material risk identification process is generally well developed in most banks, including a granular risk inventory, a materiality grid and materiality assessment methods by type of risk and sub-categories of risk.

Generally conducted once a year, there are nevertheless many areas for improvement to better integrate the identification process with strategic planning, the budget process and the normative and economic approaches of the ICAAP. In this regard, few banks ask the business lines to have a field vision of the risks encountered in their daily activity and integrate them into the Risk ID process. Likewise, risk materiality assessment is generally not integrated into strategic planning or in any case only highlights vulnerabilities at the macro level.

Another important area for improvement is to ensure a better link between the prospective view of material risks and the ICAAP methodologies. This includes defining criteria to justify the link or relationship between a material risk, the need to quantify this risk and capitalize it in the eco approach or to have specific shocks in the stresses of the normative approach.



## 5. Principle 5 : Internal Capital

This section sheds light on approaches elaborated by banks for defining their internal capital especially on the analysis of the key capital components and the rationale to include these items or not in the internal capital.

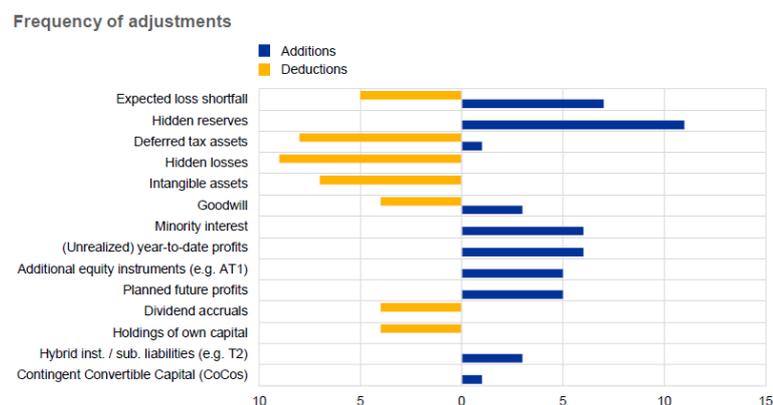
### a. Key outcomes of ECB's report

As banks are expected to demonstrate their ability to cover risks with capital while assuming the continuity of their operations, they should define the concept of internal capital and identify its key components whether their starting point is the regulatory own funds or accounting values.

- **Over half of banks** of the sample **do not have an appropriate approach** to defining their internal capital:
- **More than two-thirds** of the banks are using **regulatory own funds as the starting point** for internal capital definition; the balance in the sample are using the accounting value as a starting point.
- **No banks use the net present value (NPV)** as a starting point for internal capital definition

Looking at the relationship between internal capital and regulatory capital, most banks have internal capital levels at or above CET1 level (16% higher than CET1 on average) and at a lower level of 4% than total regulatory own funds. Besides, banks that use accounting figures as a starting point tend to have higher internal capital levels compared to CET1 levels (average: 129%) than those that use regulatory own funds as a starting point (average: 111%). This is in line with the fact that prudential filters, deductions and other adjustments usually lead to own funds figures that are lower than balance sheet capital figures. Highlighted below are the key adjustments used by banks, with hidden reserves and losses being the most frequent. Note that one in five bank uses CET1 or total own funds as internal capital without any adjustments.

Figure 7 : Illustrative additions to and deductions from starting points used when determining internal capital (source ECB)



Most of the banks don't systematically analyse the capital components with regard to two key features of the economic perspective, namely **continuity assumption and economic value considerations** before including them which could lead to unjustified inclusions or neglected deductions that inflate the internal capital figures. For instance, additional tier 1 is included in internal capital by around half of the banks in sample but only one in ten provides justification for including them with no particular justification of consistency in the continuity assumption and economic value considerations.



## b. Sound practices identified by the ECB

As part of this report, the ECB has decided to share several sound practices related to the definition of internal capital that have been identified during these investigations:

Principle	Themes	Good practices
Internal capital	Internal capital components	A clear definition of capital components considered eligible to cover risks under the economic perspective. These criteria include: (i) ability to absorb losses under the assumption of business continuity; (ii) marketability in a crisis scenario; and (iii) consistency with risk quantification under the economic perspective
	Economic value adjustments	Another good practice is to analyse the need systematically and granularly for economic value adjustments to bank's assets and liabilities.

## c. Our analysis put in perspective to market practices

Most banks have defined an approach to internal capital. Practices nonetheless remain very heterogeneous from one institution to another, ranging from the simplest approach consisting of retaining CET1 and revisiting some prudential adjustments to more sophisticated approaches aimed at identifying the components of capital that can cover economic risk. The following adjustments to regulatory capital under the economic perspective could be considered, **essentially to ensure consistency with risk quantification approaches.**

Expected losses	Prudent valuation	xVA treatment	Other possible adjustments
<ul style="list-style-type: none"> <li>On the IRB scope, <b>loan loss provisions</b> (i.e. specific credit risk adjustments) are compared to the <b>expected loss</b> computed with the IRB models (EL = PD X LGD).</li> <li>Depending on the sign of the differences, shortfalls/surplus of provisions <b>are respectively deducted from CET1 or included in Tier 2</b> (up to a cap of 0.6% of RWA).</li> <li><b>Case 1 : IRB shortfall (EL &gt; Provisions)</b></li> </ul> <ul style="list-style-type: none"> <li><b>Case 2 : IRB excess (Provisions &gt; EL)</b></li> </ul> <ul style="list-style-type: none"> <li>In the ICAAP, credit risk is quantified with an internal Credit VaR which requires a retreatment of the expected losses to maintain consistency.</li> <li>It is also suggested to include IRB excess in internal capital (despite being T2 in P1), as there is no restriction on their loss-absorption capacity.</li> </ul>	<ul style="list-style-type: none"> <li>Under the prudential rules, CET1 is subject to deduction of up to 9 additional valuation adjustments (AVAs) to reflect the valuation uncertainty of fair valued positions.</li> <li>In the ICAAP, additional capital charges are embedded in the market risk quantification in addition to extending the IMA perimeter (as that approach does not capture certain specific risks).</li> <li>Generally speaking, <b>there might be some overlap between those two treatments.</b></li> <li>Easy savings could be done by assessing <ul style="list-style-type: none"> <li>The overlap between the Close-out costs AVA (CoCo) and the add-on for illiquidity risks</li> <li>The AVAs applied on all fair-valued positions whereas market risk considers the trading book</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Gains/losses on fair-valued liabilities from change in <b>own credit standing are deducted from CET1</b></li> <li>Work can be conducted decide on the economic treatment, notably with regards to the methodological and normative aspects regarding FVA.</li> <li>A coherent and unified approach must be defined to ensure the consistency maintain (or not) the regulatory treatment, i.e. to filter the impact of DVA but not of FVA and the potential inclusion of DVA shocks within XVA risk quantification stream</li> </ul>	<ul style="list-style-type: none"> <li>Reassess the <b>treatment of the goodwill</b>: <ul style="list-style-type: none"> <li>Lower the goodwill deduction in economic view (e.g. deduct smaller part of AM goodwill due to diversification and performance effects)</li> <li>Considering goodwill as an exposure at risk and capital assigned to cover the risk of impairment (as it is the case in certain bank)</li> </ul> </li> <li>Neutralisation of the EL on equity exposures related to insurance companies or PE</li> <li>Netting of DTA/DTL</li> </ul>

It is important to mention that we have investigated within one of our clients a method of evaluating internal capital based on an EVE metric. While quite challenging to set up due to the number of pockets in the balance sheet that cannot be covered by this evaluation, it is nevertheless an interesting exercise to assess some components, for e.g. costs amortized in a mark-to market approach.



## 6. Principle 6 : ICAAP risk quantification methodologies

In this section, the analysis focus on methodologies and approaches used by banks for quantifying risks under the economic perspective whether it rely on a regulatory approach or statistical models.

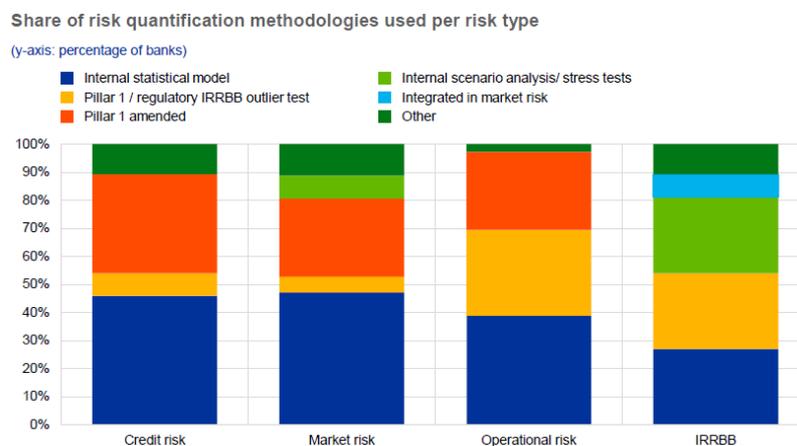
### a. Key outcomes of ECB's report

As previously mentioned, the economic perspective remains an area of improvement. Banks have worked over the past few years to develop risks sensitive and conservative methodologies adapted to their business model to accurately assess their material risks to be capitalised. Nevertheless, ECB's analysis highlights that banks **mainly use amended regulatory approaches or non- Pillar 1 statistical methodologies**.

Even though some Pillar 2 risks can be highly material for banks, the scope of risks analysed is limited to those which are considered very relevant for most banks (e.g. Pillar 1 risks and IRRBB). For operational risk and IRRBB, one-third of the banks use Pillar 1 and supervisory outlier test figures, respectively, without any amendments; this is much less common for market and credit risk.

The following figure present the share of risk quantification methodologies used per risk type for Pillar 1 risks and IRRBB

Figure 8 : Risk quantification methodologies used under the economic perspective for Pillar 1 risks and IRRBB (source ECB)



Banks that use **amended regulatory Pillar 1 risk quantification methodologies** for quantifying credit, market and operational risk most commonly:

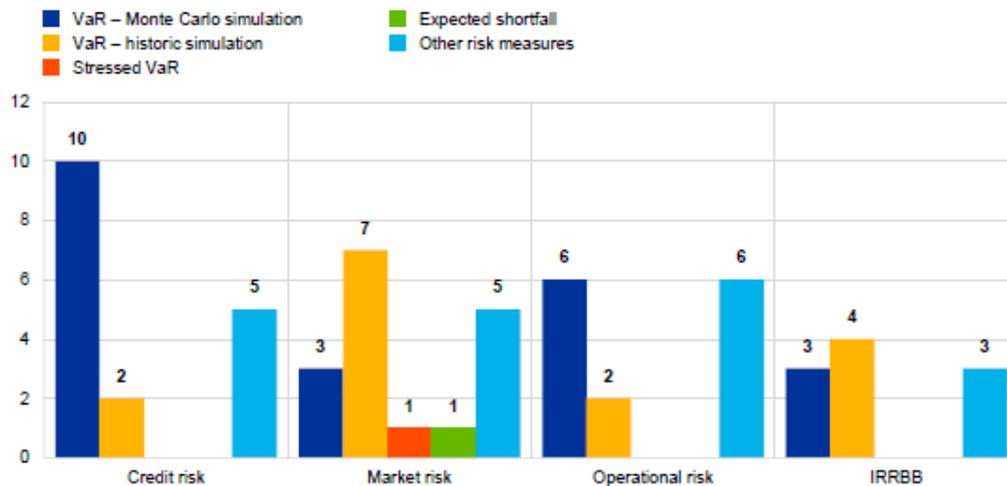
- Use **scope different to that used under Pillar 1**.
- Tend to **adjust their underlying assumptions and parameters, including the confidence levels**

As for the statistical models used for quantifying risk, **VaR measurement** of distributions based on **Monte Carlo simulations** is the most commonly observed approach for **credit and operational risk**, while for **market risk**, **VaR methods based on historical simulations** are more common. Regarding **IRRBB quantification**, around one-quarter of the banks in the sample use **statistical models that focus on EVE measures**. Overall, half of the banks use a **combination of EVE and earnings measures** for determining risk figures under the economic perspective and one in ten banks only quantifies earnings measures.



Considering the banks which are using internal statistical models, the following figure present the modelling approach retained by risk types.

Figure 9 : Frequency of risk measures banks used in internal statistical models by risk types (source ECB)



Note that G-SIBs mostly use statistical models for the quantification of credit and market risk, rely more on Pillar 1 Advanced measurement approach (AMA) models for quantifying operational risk, and either include IRRBB as part of market risk or use scenario analysis for IRRBB quantification.

Considering the **underlying assumptions and parameters of statistical models**, banks have generally retained the following options:

- Confidence level values of 99.9% and above are meanwhile an established standard amongst SIs for the ICAAP, with **99.9% now being most used across risks**.
- For market risk, the holding period is in most cases is **lower than 250 trading days**. Overall, ten days and 250 days are the most frequent assumptions.
- Slightly more than half of the banks explicitly address the uncertainties surrounding risk quantification methodologies by increasing their level of conservatism. Among them, **almost half of them do so by allocating an additional buffer for model risk**.

While risk quantification methodologies are refined over time, the main objective remains to assess the appropriate amount of internal capital to cover the key materials risk with the appropriate capital resources. It is then important for banks to well understand the capital consumption per risk and their weight under the internal capital demand.

When it comes to analysing the relative shares of risk compared to overall risk amounts, it is obvious that the level of heterogeneity across banks is much greater for the ICAAP than for Pillar 1 assessments. The typical share of credit risk ranges from 65% to 87% under Pillar 1 versus 35% and 84% in the ICAAP showing that banks on average consider credit risk to be much less dominant than the Pillar 1 level do (60% versus 78%) and furthermore that banks are of the opinion that Pillar 1 requirements massively underestimate market risk (2% versus 10%). Besides, it is worth noting that non-Pillar 1 risks can also play an important role, with IRRBB ranging up to 46% and other non-Pillar 1 risk reaching up to 58% in shares of overall risk amounts in the ICAAP.



Figure 10 : Shares of risks in the ICAAP versus “Pillar 1”, including IRRBB outlier test results (source ECB)

Risk shares: ICAAP (in brackets: Pillar 1, including IRRBB outlier test)	MIN	10% Percentile	Average	90% Percentile	MAX
Credit risk	4% (42%)	35% (65%)	60% (78%)	84% (87%)	100% (98%)
Market risk	0% (0%)	0% (0%)	10% (2%)	23% (6%)	87% (21%)
Operational risk	0% (0%)	4% (5%)	11% (9%)	15% (15%)	87% (27%)
IRRBB	0% (0%)	0% (2%)	7% (11%)	17% (23%)	46% (48%)
Other risks	0%	0%	12%	28%	58%

### b. Sound practices identified by the ECB

As part of this report, the ECB has decided to share several sound practices related to ICAAP risk quantification methodologies:

Principle	Themes	Good practices
ICAAP risk quantification methodologies	Methodologies inventory	<p>Bank could establish an inventory of risk quantification methodologies which could allow the management body to have an overarching view of the level of conservatism in the approaches used. This inventory could contain in particular:</p> <ol style="list-style-type: none"> <li>1. Description of the methodology and configuration;</li> <li>2. Model validation history</li> <li>3. Limits, thresholds alerts</li> </ol>

### c. Our analysis put in perspective to market practices

Based on our experience, we see banks evidencing key **shortcomings** relating to methodologies for quantifying risks in the economic approach.

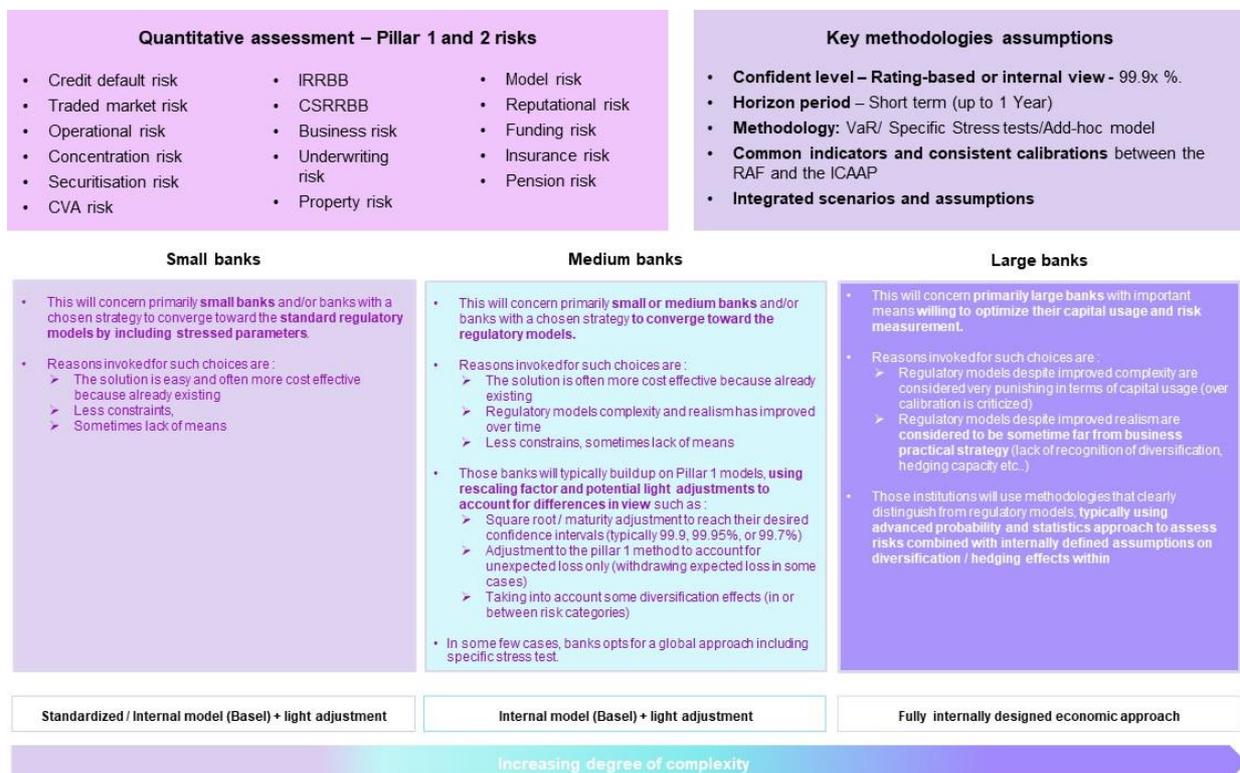
The first area of improvement concerns the **scope or coverage of the risks to be quantified**. Risks linked to insurance and asset management activities are often neglected and not quantified. In particular, we see relatively few interactions in practice between the methodologies and outcomes of the ORSA and the ICAAP. In addition, other Pillar 2 risks such as Business risk, Private Equity risk, CSRBB and Model risk are often absent from risk quantification.

Another more transversal theme still requires maturation within banks: the concept and purpose of the economic approach and its potential interaction with the normative approach. Although the approach to assessing the economic risk is understandable, banks tend to have no clear view on what it should be in terms of risk quantification for several risks notably the hardest to quantify.



Finally, several practices are emerging in terms of risk quantification methodologies under the economic approach. For small banks with limited modelling capabilities, the most common approach adopted is the quantification of risks through extensions or adjustment of prudential models for Pillar 1 risks although this tends to disappear (IRB or VaR like) as Pillar 2 risks are generally quantified through very simple approaches. The most common practice is a combination of VaR models on broader perimeters for Pillar 1 risks and stress test approaches for other Pillar 2 risks. Finally, a certain number of banks have instead opted for the **development of a generalised stress testing approach** combining specific stress tests for all risk classes, different degrees of severity and multiple horizons period. It should be noted that this latter practice is generally the **one which allows an integration of the results of the economic approach into the decision-making process**.

Hereafter are described some element of market practices regarding the key components of economic model approaches regarding the banks' size.





## 7. Principle 7 : Stress testing

This last section focuses on the internal stress testing process and more specifically on the number, severity and the frequency of reviews of scenarios.

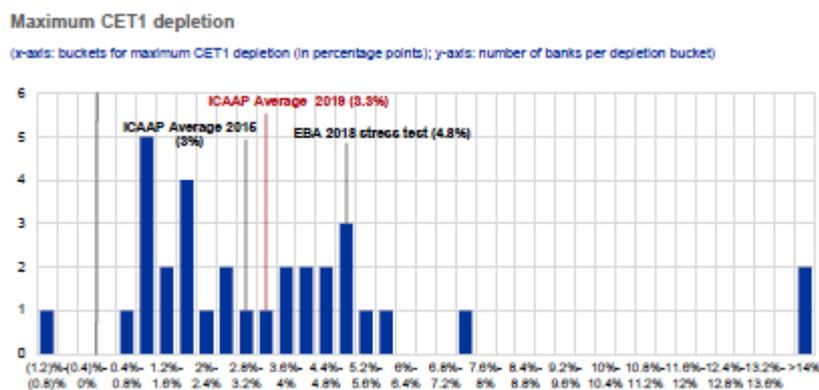
### a. Key outcomes of ECB's report

On the positive side, all banks have developed and implemented internal stress tests that are forward-looking over a sufficiently long time-horizon. Nevertheless, while all banks have stress-testing programmes covering the normative perspective, this is the case for **only half of them for the economic perspective**. Besides, it is important to mention that two third of banks addresses key material risks in their stress tests even though one in four banks has an elaborated process in place to do so.

Regarding the number and the nature of scenarios, all banks seem to have at least one adverse scenario under the normative perspective; **most commonly, two adverse scenarios** are used. Under the economic perspective, **around one-half of the banks have at least one comprehensive adverse scenario** and one in five banks assesses more than two scenarios. Under both perspectives, banks predominantly **use a maximum time horizon of three years** in their stress-testing programmes.

When assessing the severity level of adverse scenarios simulated under the normative perspective, there is significant heterogeneity across banks in the levels of maximum CET1 depletion. In fact, as it is mentioned in the next figure, 3.3% is the average of the maximum CET1 depletions over the scenario time horizon across all sample banks and is clearly lower than the comparable average EBA stress test result in 2018 of 4.8 percentage points. Also, at the bank-specific level, banks' internal stress tests usually result in lower capital depletions than the EBA stress tests – only for one in ten banks have EBA CET1 depletion levels lower than in ICAAP stress tests.

Figure 11 : Severity level of adverse scenarios under normative perspective (source ECB)





Almost all banks conduct reverse stress-testing, predominantly only under the normative perspective and primarily use a breach of the TSCR as the pre-defined outcome of the reverse stress-testing. The predominant frequency for reviewing and applying scenarios in their ICAAP stress-testing **usually follows an annual cycle under both perspectives**. Under the normative perspective, less than half of the banks apply their scenarios more frequently than annually and one in six banks reviews the adequacy of its adverse scenarios accordingly. Regarding stress-testing outside of the regular cycle, a significant number of banks do not have **a documented process for conducting ad hoc stress-testing**.

#### b. Sound practices identified by the ECB

As part of this report, the ECB has decided to share several sound practices related to ICAAP risk quantification methodologies that have been identified:

<i>Principle</i>	<i>Themes</i>	<i>Good practices</i>
<i>Stress-testing</i>	<b>Interaction ICAAP / ILAAP</b>	Implementation of <b>a dedicated process</b> for systematically considering the effects arising from their ILAAP stress-testing, or defined liquidity shocks, in ICAAP stress-testing.
	<b>Scenario construction</b>	Construction of a scenario with simultaneous impacts on solvency and liquidity over a 12-month horizon.
	<b>Reverse Stress-testing</b>	Construction of a reverse stress-test which is not based on the stress of a single risk factor to attain a ratio goal but on the plausible combination of several risk factors.

#### c. Our opinion and market practice

Since the early / mid-2010s, the world's largest supervisors have made stress tests a key tool for assessing the capacity of banks to withstand deteriorated macroeconomic conditions. In practice, we have observed that banks have considerably improved their internal stress test frameworks in recent years. Indeed, banks today have an internal stress test system structured by module (Risks, P&L, RWA, Liquidity ...) within a governance and validation process articulated around the different layers of bank management. Regarding the design of scenarios and the modeling of stressed parameters, the banks have also considerably strengthened their capacities.

By mirroring the stress tests carried out by the EBA every two years, the stress tests generally aim to assess the impact on the P&L and RWA trajectory and therefore the solvency ratios over a 3-year horizon, under several macroeconomic scenarios. This explains why the stress tests of the normative approach stand out as more mature although there are still areas for improvement. Indeed, the industrialization and integration of internal stress tests into internal management processes remain important areas of development which will require additional investments in terms of infrastructure to increase the frequency of production and increase the visibility and relevance of these exercises with the senior management of banks. The COVID-19 crisis has also particularly demonstrated the relevance of having multiple simulation capabilities and being able to conduct rapid stress test exercises.



On the other hand, it remains surprising that this report mentions the immaturity or even the non-existence of stress tests in the economic approach. In fact, the traditional market practice in terms of risk quantification relies on the use of 99.9% VaR models approaches meaning that stressed VaR should be developed or considered under the economic perspectives. In fact, this will contribute to design an internal capital trajectory over three years under stressed circumstances. As it is not surprising in terms of concept and consistent with the normative approach spirit, on the other hand it raises many methodological questions, particularly on how to quantify certain Pillar 2 risks over a medium-term horizon.

In addition, there are two areas which require banks to take further action: a) building an integrated approach to stress tests combining liquidity and solvency impacts and b) a better use of reverse stress tests to identify the main vulnerabilities of the institution.



## AVANTAGE REPLY

Avantage Reply (a member of the Reply Group) is a pan-European specialized management consultancy delivering change initiatives in Risk, Finance, ALM, Treasury and Compliance within the Financial Services industry.

Founded in 2004, Avantage Reply is providing subject matter expert advisory for key ALM, Finance & Risk hot topics in CFO and CROs agendas. Our service offer is notably covering

- Strategic Risk Management (Risk Appetite, Risk allocation to business, Return indicators)
- Strategic steering (ICAAP, ILAAP, Stress tests) and crisis management processes (Recovery plans, Contingency plans...)
- Finance and Risk organizational structures (target design and implementation) and governance
- ALM/ Liquidity management (steering and governance, structural risk management framework, modelling...)
- Operational and Financial Risk Management frameworks (Market risks, counterparty/credit risk, liquidity/re-financing risk)
- Finance and Risk Modelling and Stress testing
- Model risk management framework
- Finance and Risk measurement systems and reporting
- Regulatory strategy and remediation

With a strike force of almost 250 consultants combining recognized regulatory, business and sectoral expertise within ALM, Finance and Risk functions of the European banking sector, we offer our customers tailor-made solutions adapted to their key issues while accessing the best practices in place. Finally, our European network allows us to have a transversal and European vision of prudential expectations but also of best practices in terms of organization, governance, steering process, modelling and stress testing and information systems of ALM, Risk and Finance functions.

### AVANTAGE REPLY

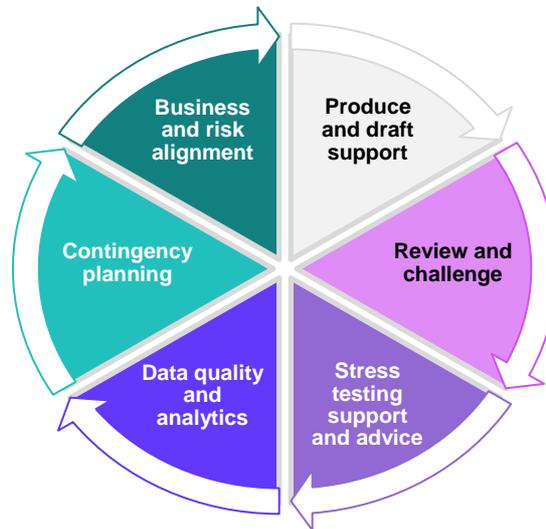
With a strike force of almost 250 consultants combining recognized regulatory, business and sectoral expertise within ALM, Finance and Risk functions of the European banking sector, we offer our customers tailor-made solutions adapted to their key issues while accessing the best practices in place. Finally, our European network allows us to have a transversal and European vision of prudential expectations but also of best practices in terms of organization, governance, steering process, modelling and stress testing and information systems of ALM, Risk and Finance functions



## HOW CAN WE HELP?

Avantage Reply supports Deputy CEOs, CROs and CFOs in in their strategic, organizational and methodological transformation. It includes notably:

- Strategic diagnosis, gap analysis and benchmarking
- Definition and design of steering processes and dashboard
- Organizational and governance redesign
- Deployment and operational implementation
- Modeling and Quantitative studies
- Subject matter expert support



<b>Produce and draft support</b>	<ul style="list-style-type: none"> <li>• Holding the pen' on aspects of or entire document</li> <li>• Facilitating and coordinating workshops, steering committees and governance forums, while ensuring firm retains ownership and control</li> </ul>
<b>Review and challenge</b>	<ul style="list-style-type: none"> <li>• Provide critical, structured review of outputs and feed back to key stakeholders</li> <li>• Helps clients anticipate and plan for regulatory challenge and articulate the 'story' of their ICAAP/ILAAP/RRP</li> </ul>
<b>Stress testing subject matter expert support</b>	<ul style="list-style-type: none"> <li>• Advice and challenge on the end to end stress testing process including:</li> <li>• Interpreting and applying prescribed methodology</li> <li>• Scenario generation linked to risks and business drivers</li> <li>• Models and other approaches to projections</li> </ul>
<b>Data quality and analytics</b>	<ul style="list-style-type: none"> <li>• Advice, analysis and challenge on data sourcing, quality and processing, and reconciliation relevant to the quantitative analysis presented in the ICAAP/ILAAP/RRP</li> <li>• Frameworks and tools for reviewing and challenging data outputs presented in the ICAAP/ILAAP/RRP</li> </ul>
<b>Contingency planning</b>	<ul style="list-style-type: none"> <li>• Reviewing the quality and credibility of contingency plans in both the recovery plan and ICAAP/ILAAP</li> <li>• Advice, challenge and support in 'war gaming' contingency plans and actions</li> </ul>
<b>Business and risk alignment</b>	<ul style="list-style-type: none"> <li>• Advice and challenge on integrating ICAAP/ILAAP processes into business planning and risk management including risk appetite, corporate planning, product development, business model changes</li> <li>• Advice and challenge on embedding ICAAP/ILAAP production into processes</li> </ul>