

**BCBS/EBA: LATEST PUBLICATIONS
ON SUPERVISORY AND INSTITUTION
STRESS TESTS**

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1 THE AUTHOR



Nathanael Sebbag

Senior Manager



Ruyue Zhang

Consultant

2 ABSTRACT

For a couple of years now, the role of stress testing has evolved and grown in significance in many jurisdictions. Stress tests have become **a critical tool** for banking supervisors, macro prudential authorities and institutions **to assess solvency and liquidity resilience in a steadily deteriorating economic climate**. In this context, the European Banking Authority (EBA) and the Basel Committee and Banking Supervision (BCBS) have conducted work in 2017 to clarify and harmonise their expectations.

Towards the end of October 2017, the European Banking Authority (EBA) issued a draft consultation paper of Guidelines on Institution's Stress testing to cover and update the CEBS guidelines on institutions' stress testing (EBA's GL 32 of 2010) to reflect the conclusions of the peer review of its implementation. During the course of 2017, the BCBS also undertook a review of its stress testing principles dating from 2009. **The updated guidelines have been published in the form of a consultation paper in December 2017.**

This briefing note focuses on the key sets of guidelines on institutions' stress testing, highlighting areas that banks should carefully evaluate to address the requirements in a timely fashion considering compliance and associated operational issues.

3 OVERVIEW

Aiming to achieve convergence of practices across the EU, **the EBA issued these documents to provide detailed guidance** to be followed by institutions when designing and conducting **a stress testing programme/framework**. The following concepts are described: the taxonomy of stress testing, the description of types of stress test exercises, the reverse stress testing process, and additional issues that need to be incorporated in the stress testing programme. More specifically, **institutions' stress testing is expected to be developed through several key components described in these guidelines.**

Considering the wide range of approaches adopted by supervisory authorities and banks, **the BCBS has also defined high-level stress testing principles** to ensure that they can be used by jurisdictions to guide all elements of a sound stress testing framework. **A number of principles are also introduced** which do not constitute **standards** but **guidelines** that focus on the core elements of stress testing frameworks.

Both publications aim at **achieving convergence of practices**. They **provide common organisation and governance requirements, methodologies and processes** for the performance of stress testing by institutions as part of their risk management and decision-making processes.

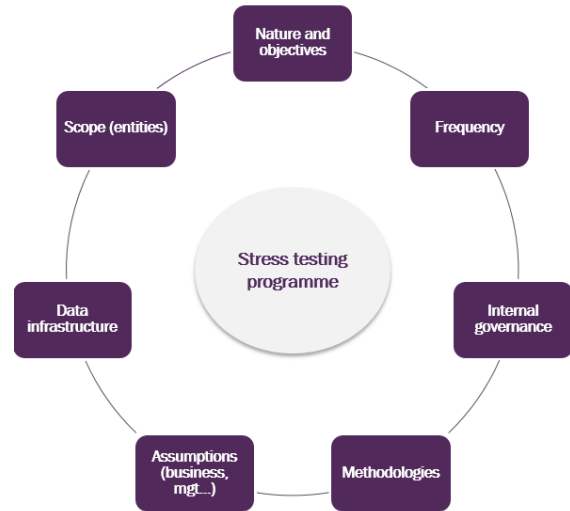
Both guidelines aim to achieve proportionality from a qualitative as well as quantitative perspective.

4 KEY AREAS OF FOCUS

Our analysis focuses on **EBA's expectations regarding key components of institutions' stress testing alongside the corresponding aspects of BCBS's principles.**

The mapping below forms the basis of our analysis:

Aggregated EBA themes	Aggregated BCBS principles
Stress testing programme and governance	<ul style="list-style-type: none"> The stress testing framework should be clearly articulated alongside formally adopted objectives. The stress testing framework should include an effective governance structure. Resources and organisational structures should be adequate to meet the objectives of the stress testing framework. Stress testing models, results and frameworks should be subject to challenge and regular review.
Stress testing types and Individual risk areas	<ul style="list-style-type: none"> Models and methodologies to assess the impacts of scenarios and sensitivities should be fit for purpose The stress testing framework should capture material and relevant risks and apply stresses that are sufficiently severe.
Data Infrastructure	<ul style="list-style-type: none"> Stress tests should be supported by accurate and sufficiently granular data and by robust IT systems.
Application of stress testing programmes	<ul style="list-style-type: none"> Stress testing should be used as a risk management tool and to make informed business decisions Stress testing practices and findings should be communicated within and across all jurisdictions



Any stress testing programme starts by **determining the types of stress testing and their main objectives**. Institutions should ensure that their stress testing programmes:

- Are workable and feasible;
- Inform the decision making at all appropriate management levels about all existing and potential material risks;
- Include reverse stress testing and the respective scenarios;
- Are regularly assessed on the basis of both a quantitative and a qualitative analysis in order to fully reflect the changing external and internal conditions;
- Are in accordance with the relevant internal policies and procedures; and
- Are appropriately documented for all types of stress tests carried out at the single risk type and/or portfolio level, as well as firm-wide level.

Also, in establishing and assessing the stress testing process, **the programme should also be challenged across the organisation through:**

- An effective dialogue **with the involvement of experts from all business areas** of the institution; and
- A robust review **by the senior management and management body** of the institution who are also responsible for monitoring its execution.

STRESS TESTING PROGRAMME AND PROGRAMME AND GOVERNANCE

1) Stress Testing Programme

Institutions should have in place a stress testing programme as illustrated below:

Key elements highlighted from BCBS publication

The guidelines dictate on how stress testing frameworks should be designed to meet clear objectives that are documented and approved at an appropriately senior-level governance body.

For banks' internal stress testing frameworks, the relevant high-level objectives should align to the bank's risk appetite and risk management framework, and may relate, for example, to the use of stress tests to inform capital and liquidity planning or to its role as an integral element of risk management.

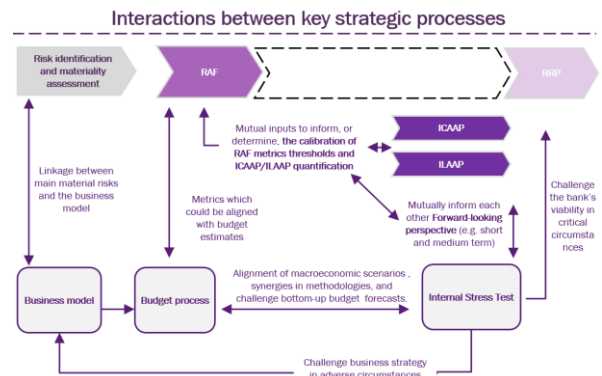
2) Stress Testing Governance

The management body of an institution has the ultimate responsibility for approving the stress testing programme and monitoring its performance. As an ultimate owner of the stress testing programme, they should also:

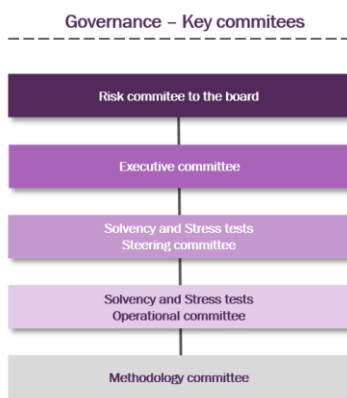
- Understand the impact of stress events on the overall risk profile of the institution;
- Evaluate the material aspects of the stress testing programme that enables them to actively engage in discussions, challenge key assumptions and scenarios, decide on management actions, etc.; and
- Evaluate the outcomes of the stress tests and take them into account when approving the strategic planning of the institution and when making relevant decisions.

- The process of establishing an institution's risk appetite and limits;
- The process of evaluating capital adequacy notably to complete and challenge institutions' capital planning;
- The process of evaluating liquidity adequacy notably to complete and challenge institutions' funding plan; and
- The process of evaluating capital and liquidity triggers for the activation of the recovery plan and implementation of institutions' recovery options.

Institutions should ensure that stress tests support different business decisions and key processes as well as strategic planning. All processes should be interlinked to each other as described below.



Following is an illustration of Stress Testing Governance



3) Integration into institution's activities as well as decision making process

The programme is used as an effective internal tool across business lines and management levels and is an integral part of institution's risk management framework and strategic decision-making process. In particular, the **outcomes of the stress tests should be used as an input to:**

Key elements highlighted from BCBS publication

Stress testing is a forward-looking risk management tool that constitutes a key input into banks' and authorities' activities related to risk identification, monitoring and assessment. As such, stress testing should also contribute to formulating and pursuing strategic and policy objectives.

This should specify the roles and responsibilities of senior management, oversight bodies and those responsible for the ongoing operation of the stress testing framework.

Roles and responsibilities should be specified for all aspects of the stress testing framework, including: scenario development and approval, model development and validation, reporting and challenge of results and the use of stress test outputs. **The roles of the second and third lines of defence should be specified** (i.e. risk management and compliance, and internal audit, respectively). Policies and procedures should cover all aspects of the stress testing framework, be clearly documented, kept up-to-date and be approved by the board and/or senior management.

INDIVIDUAL RISK AREAS AND STRESS TEST TYPES

1) Risk identification

The stress testing of individual risk should be proportional to the nature, size and complexity of their business and risks. Institutions should take into account, at individual level, the impact of second order effects in the individual risk for stress testing:

- **Credit and Counterparty Risk:** Analysing at least the repayment ability, the recovery rate and the size and dynamics of credit exposure (e.g. the exposure at default).
- **Securitisation:** Risk that arises from structured credit products and ensure that stress testing of securitised assets addresses the credit risk of the underlying pool of assets and take into account all relevant information with regard to the specific structure of each securitization
- **Market Risk:** Risk of losses resulting from adverse changes in the value of positions arising from movements in market prices and interest rates risk factors.
- **Operational Risk:** Effect of operational losses as *the main metric* and include any loss of future earnings caused by operational risk events.
- **Conduct Related Risk and Associated Litigation Costs:** part of legal risk under the scope of operational risk.
- **Liquidity Risk:** Applying three types of stress scenarios: idiosyncratic, market-wide, and a combination of the two., with different time horizons (at least 12 months)
- **Interest Rate Risk from Non-Trading Activities:** Takes into account yield curve risk, spread risk and option risk
- **Concentration Risks** (including the single-name concentrations...): Takes into account changes in the business environment that may occur would lead to the materialisation of concentration risk.
- **Foreign Exchange Lending Risk:** With stress scenarios where changing different parameters could allow institutions to forecast foreign exchange credit portfolio performance in different cases.

Key elements highlighted from BCBS publication

Stress test scenarios should be designed to capture material and relevant risks identified in the risk identification process and key variables within each scenario should be internally consistent. A narrative should articulate how the scenario captures the risks. If certain material and relevant risks are excluded from the scenarios, their exclusion should be explained and documented.

2) Stress test methodologies

An institution's stress testing methodology should:

- be appropriate to the institution's size as well as the complexity and riskiness of its business activities;
- identify appropriate, meaningful and robust mechanisms for translating risk factors into relevant internal risk parameters; and
- take account of the model risk involved in modelling risk factors/scenarios and ensure expert review, with a sufficient degree of conservatism.

The link between stressed risk factors and the risk parameters should not only be based on institutional historical experience and analysis, but should be supplemented by benchmarks from external sources.

Stress tests should be built through various approaches and have **to take into account the following components.**

i. Sensitivities analysis

Sensitivity analysis should be conducted to assess the aggregation level at which these analyses are meaningful or even feasible. For that purpose, institutions should:

- Identify relevant risk factors across different portfolios, business units and geographical location;
- Stress the identified risk factors by using different degrees of severity to reveal nonlinearities and threshold effects; and
- Endeavour to ensure that sensitivity analysis is also carried out by stressing statistical aspects of portfolio risk parameters.

ii. Scenario analysis

Scenario design is a key foundational element within a stress testing programme. Scenarios must:

- Include a **coherent narrative** by taking into account **systematic and institution-specific changes** in the present and foreseeable future;
- **Be forward-looking** and be based on historical events, hypothetical scenarios and also based on non-historical events;
- **Address all material risks** which the institution may be exposed to and major institution-specific vulnerabilities (e.g. concentration and correlation risks); and
- Be internally coherent to ensure that the key risk factors behave consistently with other risk factors in a stress.

iii. Severity of scenarios

Stress testing should be based on severe but plausible scenarios such that various degrees of severity are considered for both sensitivity analysis and scenario stress testing. The nature and degree of severity should also take into account specific vulnerabilities of each institution to a given scenario on the basis of its business model.

Institutions should develop own scenarios, and ensure that their scenarios assess absolute and relative changes of risk factors. For assessing the appropriate degree of severity of scenarios, **institutions should also compare them with the scenarios defined for their reverse stress testing process.**

Key elements highlighted from BCBS publication
<p>The models and methodologies used to derive stress estimates and impacts should fit to the purpose and the intended use of stress tests. This implies:</p> <ul style="list-style-type: none"> • The need to adequately define, at the modelling stage, the coverage and types of risks in line with the objectives of the stress test framework; and • The level of sophistication of the models should be appropriate for both the objectives of the exercise and the type and materiality of the portfolios. <p>The modelling choices and calibration decisions should consider the interactions between different risk types, as well as the linkages between models. In this regard, the links between solvency and liquidity stresses should be considered.</p>

3) Focus on Reverse stress testing

i. Requirements

Reverse stress testing should be carried out regularly by all types of institutions and performed at the same level of application as ICAAP and ILAAP.

These scenarios should complement the range of stress test scenarios and are useful to assess the severity of scenarios for ICAAP and ILAAP stress tests. In carrying out their reverse stress tests, institutions should also consider whether failure of one or more of its major counterparties or a significant market disruption arising from the failure of a major market participant would cause the pre-defined outcome.

ii. Use of reverse stress testing

Reverse stress testing should be used:

- As a regular risk management tool and as part of business planning and risk management;
- In planning and decision making to challenge business models and strategies;
- To explore vulnerabilities to extreme events (Institutions with particular business models); and
- As an essential complement of internal models for calculation of capital requirements and as a regular risk management tool for revealing the possible inadequacies of these internal models.

The reverse stress testing should also be used as a tool to gather insights into scenarios that involve combinations of solvency and liquidity stress events and to challenge their capital and liquidity plans.

iii. Recovery actions and planning

Various scenarios featuring severe macroeconomic and financial distress should be developed by **varying their severity for use in recovery plans**. Specific reverse stress testing should be used to develop 'near-default' scenarios to test the efficiency and effectiveness of the recovery actions and recovery planning, and analyse sensitivities around respective assumptions.

Reverse stress testing should also be used to assess effective recovery actions by identifying the risk factors and further understand and describe the scenarios that would result in 'near default'. Reverse stress testing should contribute to the recovery plan scenarios by using a dynamic and quantitative scenario narrative:

- The recovery triggers, i.e. at which point the institution would enact recovery actions in the hypothetical scenario;

- The recovery actions required and their expected effectiveness, including the method of assessing that effectiveness; and
- The appropriate timing and process required for those recovery actions.

The stress tests for ICAAP and ILAAP purposes and recovery planning should not be interlinked **but compared to each other due** to the different objectives of the two sets of reverse stress tests.

DATA INFRASTRUCTURE

The stress testing programme should be supported by an adequate infrastructure that features:

- The capacity to capture the extensive data needs of the stress testing programme; and
- Mechanisms that ensure the organisation's continuing ability to conduct stress testing as planned, such as reliable data storage, data access and processing capacity.

1) General requirements on data infrastructure

An institution's data infrastructure should be proportional to its size and complexity. Adequate human, financial and technological resources should be devoted to the stress testing programme in order to guarantee the effective development and maintenance of their data infrastructure.

2) Regarding 'data aggregation capabilities'

A process for aggregating and producing reliable and up to date risk data should be established internally. The aggregation process for risk and finance data used in stress testing should ensure:

- Accuracy;
- Adaptability;
- Completeness;
- Integrity; and
- Timeliness.

Indeed, this data needs to be aggregated on a largely automated basis so as to minimise the probability of error.

Finally, the data infrastructure should be able to generate aggregate data to meet a broad range of on-demand requests.

Data infrastructure supporting the risk reporting process

The reporting process should:

- Be completely supported by data aggregation capabilities;
- Cover all material risks and, in particular, allow identification of emerging vulnerabilities; and
- Offer additional information regarding main assumptions, tolerance levels, or caveats and communicate information in a clear and concise manner.

APPLICATION OF STRESS TESTING PROGRAMMES

The stress testing programme should be used to inform business decisions and to challenge both capital and liquidity planning. In particular, it should allow institutions' senior management to take management actions where appropriate.

1) Stress testing for ICAAP/ILAAP purposes

Furthermore, by means of stress testing, as part of their ICAAP and ILAAP, institutions should:

- Cover all material risk categories (and sub-categories) to which the institutions are exposed;
- Consider a range of scenarios including at least an adverse economic scenario that is severe but plausible;
- Be consistent with the risk appetite and overall (i.e. including business) strategy of the institution;
- Evaluate the reliability of their capital plans under stress conditions to ensure that they meet the capital requirements applicable to them;
- Test the reliability of their liquidity plans to ensure that they can meet liabilities as they fall due under stress conditions;
- Ensure they have enough capital and liquidity resources to cover for the risks institutions are, or might be, exposed to;
- Ensure appropriate allocation of capital and liquidity resources across the entities of an institution over the economic cycle; and
- Assess the level of transferability of capital and liquidity resources in stressed conditions.

2) *Management actions*

Institutions should demonstrate a clear link between their risk appetite, their business strategy, and their ICAAP and ILAAP stress tests. For that purpose, credible management actions should be identified to address the outputs of stress tests. A broad range of acceptable management actions should be considered (potentially subject to the guidance and judgement of competent authorities) that might include the following:

- the review of internal risk limits;
- the review of the use of risk mitigation techniques;
- the revision of policies, such as those that relate to liquidity and funding or capital adequacy;
- The reduction of distributions to shareholders;
- The changes in the overall strategy and business plan and risk appetite; and
- Raising of capital or funding.

5 **NEXT STEPS: WHAT ARE THE KEY CHALLENGES?**

The different topics outlined above provide a clear understanding of the EBA and the BCBS expectations. The bar is raised to a new level in particular regarding the definition and implementation of a firm-wide stress testing programme.

For current and future supervisory requirements, stress testing will remain a key challenge and a key area of focus for institutions. Below summarises the key challenges banks are facing following the implementation of these guidelines.

Management responsibility and integration

Stress tests must be more integrated into the bank's governance and risk management. Stress testing results **should be interlinked with the business strategy and other key strategic process** but also integrated into management decision bodies and decision-making processes through dedicated KPIs and KRIs.

Risk identification and stress test methodologies

Institutions will have to assess all material risk with different perspectives, with different levels of severity (including severe, but plausible) and various horizon periods. The stress testing of individual risks should be proportional to the nature, size and complexity of their business and risks.

Reverse stress testing

Reverse stress testing should be carried out regularly by all types of institutions and complement the range of stress test scenarios and are useful to assess the severity of scenarios for ICAAP and ILAAP stress tests. It should also be used as a tool to gather insights into situations that involve combinations of solvency and liquidity stresses and to challenge their capital and liquidity plans.

Data infrastructure

An institution's data infrastructure should be proportional to its size and complexity. Adequate human, financial and technological resources should be devoted to the stress testing programme in order to guarantee the effective development and maintenance of their data infrastructure.

6 **ABOUT AVANTAGE REPLY**

Avantage Reply (a member of the Reply Group) is a pan-European specialised management consultancy delivering change initiatives in Risk, Compliance, Finance (Capital Management and Regulatory Reporting), Treasury and Operations within the Financial Services industry.

Within our core competencies, we have extensive experience in implementing changes driven by:

- Industry-wide legislative and regulatory initiatives (e.g. CRD, BRRD);
- Mergers, Acquisitions & Divestments (e.g. business combination, separation and flotation); and
- Business improvement and optimisation agendas (e.g. risk appetite and capital allocation).

contacts

Avantage Reply (Amsterdam)

The Atrium | Strawinskylaan 3051
1077 ZX Amsterdam
Netherlands
Tel: +31 (0) 20 301 2123
E-mail: avantage@reply.eu

Avantage Reply (Brussels)

5, rue du Congrès/Congresstraat
1000 Brussels
Belgium
Tel: +32 (0) 2 88 00 32 0
E-mail: avantage@reply.eu

Avantage Reply (London)

38 Grosvenor Gardens
London SW1W 0EB
United Kingdom
Tel: +44 (0) 207 730 6000
E-mail: avantage@reply.eu

Avantage Reply (Luxembourg)

21-25 Allée Scheffer
2520 Luxembourg
Luxembourg
Tel: +352 286 843 1
E-mail: avantage@reply.eu

Avantage Reply (Milan)

Via Castellanza, 11
20151 Milano
Italy
Tel: +39 02 535761
E-mail: avantage@reply.it

Avantage Reply (Paris)

3 rue du Faubourg Saint-honoré
75008 Paris
France
Tel: 33 (0) 1 71 24 12 25
E-mail: avantage@reply.eu

Avantage Reply (Rome)

V.le Regina Margherita, 8
00198 Roma
Italy
Tel: +39 06 844341
E-mail: avantage@reply.it

Avantage Reply (Turin)

Via Cardinale Massaia, 83
10147 Torino
Italy
Tel: +39 011 29101
E-mail: avantage@reply.it

Xuccess Reply (Berlin)

Mauerstrasse 79
10117 Berlin
Germany
Tel: +49 (30) 443 232-80
E-mails: xuccess@reply.de

Xuccess Reply (Frankfurt)

Hahnstrasse 68-70
60528 Frankfurt am Main
Germany
Tel: +49 (0) 69 669 643-25
E-mail: xuccess@reply.de

Xuccess Reply (Hamburg)

Brook 1
20457 Hamburg
Germany
Tel: +49 (40) 890 0988-0
E-mail: xuccess@reply.de

Xuccess Reply (Munich)

Arnulfstrasse 27
80335 München
Germany
Tel: +49 (0) 89 - 411142-0
E-mail: xuccess@reply.de