



London Stock Exchange Group response to the CPMI IOSCO consultative report on “Framework for supervisory stress testing of central counterparties (CCPs)”

Introduction

London Stock Exchange Group (“LSEG” or “the Group”) is a financial market infrastructure provider, headquartered in London, with significant operations in Europe, North America and Asia. Its diversified global business focuses on capital formation, intellectual property and risk and balance sheet management. LSEG operates an open access model, offering choice and partnership to customers across all of its businesses.

LSEG operates today multiple clearing houses. It has majority ownership of the multi-asset global CCP operator, LCH Group (“LCH”). LCH has legal subsidiaries in the UK (LCH Ltd), France (LCH S.A.), and the US (LCH LLC). It is a leading multi-asset class and international clearing house, serving major international exchanges and platforms as well as a range of OTC markets. It clears a broad range of asset classes, including: securities, exchange-traded derivatives, commodities, energy, freight, foreign exchange derivatives, interest rate swaps, credit default swaps and euro, sterling and US dollar denominated bonds and repos.

In addition, LSEG operates Cassa di Compensazione e Garanzia S.p.A. (“CC&G”), the Italian clearing house, providing clearing services for a range of European securities as well as exchange traded equity and commodities derivatives.

LSEG welcomes the opportunity to comment on CPMI IOSCO consultative report on “Framework for supervisory stress testing of CCPs”.

General remarks

LSEG fully supports the continued efforts of CPMI, IOSCO and policy makers around the world to create international guidelines, and we welcome the publication by CPMI-IOSCO of a proposed framework for supervisory stress testing (SST) of CCPs. These guidelines will promote a harmonised approach for the authorities across the different jurisdictions, and should facilitate the definition of joint scenarios and template, which are critical to the success of SSTs.

We have provided detailed responses to the questions below, but would also like to share some general views on the CPMI-IOSCO proposed framework:

- 1. Macro-prudential SSTs.** We support the macro-prudential orientation of SSTs, which should provide valuable information to better understand the macroprudential risks that could materialise if multiple CCPs were to face a common stress event. In line with this objective, multi-CCP SSTs should be clearly distinguished from stress testing designed to assess the resilience of a particular CCP, and SST results should not focus on specific participating CCPs. We believe the proposed framework contains some sound high-level principles and a comprehensive list of key points. It strikes the right balance between granularity and flexibility for implementation.
- 2. Phased approach.** We recommend a phased approach for SSTs. Authorities could start with a simpler initial exercise, and gradually incorporate additional features in subsequent exercises. Indeed, SST exercises are inherently complex. A progressive increase in complexity enables both authorities and participating CCPs to build upon the experience, feedback and implementation from previous exercises. It would greatly contribute to ensuring that each SST exercise fulfils its objective.
- 3. Scope definition.** The definition of a clear and proportionate scope for SSTs is critical to ensure feasibility and yield credible results. We recommend that SST exercises focus on credit and liquidity stress scenarios, and consider the main risk factors. Shocks should be carefully calibrated to be sufficiently extreme but plausible. Minor cleared markets could remain out of scope if they are not relevant or if their size is negligible for the purpose of the SST. This would mitigate the resource and cost impacts on authorities and in-scope CCPs, without affecting the macro-level results of the exercise.



4. **Involvement of CCPs.** We fully support the recommendation that authorities engage with key stakeholders on SSTs, including CCPs, market participants and authorities. This will provide appropriate representation across the markets, balance the various interests, and ensure the independence of an SST as a supervisory exercise. Amongst the different stakeholders, we expect that CCPs will likely have the highest level of involvement, given their deep expertise and extensive experience of stress testing. During the SST preparatory phase, CCPs' involvement will be essential for the definition of technical aspects (e.g. scenarios, risk sources, calibration of shocks) and of a suitable template for data collection. CCPs also seem best placed to perform the calculations for the application of scenarios to exposures, and provide input to assist the authorities' analysis of the results.
5. **SST methodologies.** We acknowledge that SST methodologies, due to their macro-level orientation, may not completely overlap with CCPs' internal stress testing methodologies. However, we would encourage authorities to maximize the level of similarity between the two types of methodologies, to the extent possible. This will enable CCPs to leverage, at least partially, their existing internal stress testing tools, which benefit from a high level of efficiency and automation. This approach would alleviate resource burdens and costs on CCPs.
6. **Data protection and disclosure.** We welcome the recognition in the framework for the paramount need to protect sensitive data and avoid market impacts. We recommend that the data collection process is exclusively managed bilaterally between the participating CCP and its relevant home supervisory authority. This clear unique channel for data exchange would ensure effectiveness and data confidentiality. Publication of SST results should include appropriate measures (e.g. anonymisation, aggregation) to prevent disclosure of non-public CCP data, avoid focus on specific in-scope CCPs, and should primarily provide information at a macro-prudential level, in line with the objective of these exercises.

Specific comments

1. Objective and purposes of multi-CCP tests (see Introduction and Element 1.i)

- a. **Is the framework clear with regard to the objective that a multi-CCP SST is intended to achieve, specifically to analyse the broad, macro-level impact of a common stress event on a set of CCPs?**

LSEG agrees with a macro-prudential orientation for SSTs, using a common set of stress scenarios to assess macro-level impacts on a set of CCPs, as stated under paragraph 5. We welcome global and standardised SSTs and we are fully supportive of regulatory initiatives that align practices at a global level. LCH and CC&G both have publicly contributed to the debate on CCP stress testing since 2015.

Moreover, LCH published a whitepaper on this topic "Stress this house" which can be found [here](#).

It is essential to clearly distinguish between stress testing designed to assess the resilience of a CCP, and SSTs with a macro-level focus. We share the view under paragraph 10 of the consultative report that multi-CCP SSTs would not necessarily be a sound basis for direct comparisons of resilience across CCPs. We, therefore, support CPMI-IOSCO's decision under paragraph 7 "*to develop a supervisory stress-testing framework focused on macroprudentially oriented multi-CCP SSTs*", and we would recommend emphasising this point as the scope of the framework.

- b. **Do potential users of the framework consider that its structure and content, including the design tool in Annex A, are adequate to facilitate and support them in designing and running a multi-CCP SST to meet the stated objective?**

The proposed framework contains some sound high-level principles and a comprehensive list of key points in the Annex A. As outlined in many sections of the consultative report, we fully agree that coordination and preparatory work are crucial to ensure that SSTs are meaningful, and they will be essential to limit operational overhead in the subsequent stages of the exercise. In particular, setting the



scope of the test, identifying the key contacts/working groups and aligning test parameters are critical, as highlighted in the report.

c. Do potential users of the framework consider that it is sufficiently flexible to accommodate different authorities with varying responsibilities, legal frameworks, expertise and resources?

We consider that the framework strikes the right balance between granularity and flexibility. The principles are exhaustive and provide valid guidelines, while allowing sufficient flexibility around implementation. As noted in the consultative report, SSTs will need to accommodate different legal frameworks. This reinforces the need to share with participating CCPs the SST scope and approach as early in the process as possible. This would give stakeholders sufficient time to raise specific concerns relating to a particular CCP rulebook or jurisdiction, and enable the authorities to adjust the SST accordingly, before the exercise begins.

In addition, the framework should accommodate the variety of risk models used by the different participating CCPs. We therefore believe that the consultative report should put more emphasis on the potential challenges around model parameters. Indeed, different CCPs may use different risk model parameters, for instance the margin period of risk. It is essential to define early in the process the key assumptions and parameters used for the SST. This alignment of metrics and model parameters will greatly contribute to objective interpretation of the results.

d. What do stakeholders consider to be the benefits or other implications from a multi-CCP SST?

SSTs could provide information at macro-level that is not currently available, such as concentration risk through multiple CCP, or reliance on third parties liquidity providers by multiple CCPs. Further, SSTs will reinforce regulatory coordination and promote regulatory convergence when particular industry challenges are identified. Finally, dialogue between CCPs and authorities as part of the SSTs definition (scope, objective) will also help identify industry challenges and address them globally and constructively. In that respect, industry associations (e.g. EACH, CCP12) could be helpful in gathering and centralising CCPs' feedback.

e. Remaining cognisant of confidentiality concerns and the potential need for aggregation and anonymisation of test results, how do stakeholders anticipate using the results of SST exercises?

SST exercises could be beneficial to identify, at the industry level, some specific areas, potential risks or operational challenges that could benefit from further improvements. They could also promote global industry debate and assist in the identification of macro-level answers to macro-level issues (e.g. settlement, liquidity).

2. Scope and frequency of SST exercises (see Element 1.ii, iii)

a. How can the authorities best strike a balance between the usefulness of SST results and the potential resource burdens and costs to themselves, CCPs and other stakeholders associated with conducting a SST exercise?

We support the points raised under Elements 1.ii and 1.iii of the consultative report in relation to potential resource burdens associated with SST exercises. It is essential that the scope, design and frequency of SSTs take into account constraints on CCPs' resources.



We acknowledge that authorities need to assess macro-level risk exposures during an SST. This may require a specific stress testing approach, not completely overlapping with CCPs' internal stress testing methodologies.

However, as a general principle, we encourage authorities to maximise as much as possible the level of similarity between SST methodologies and CCPs' internal stress testing methodologies. This will enable CCPs to leverage their existing internal stress testing tools, at least partially. In compliance with existing regulations, these tools benefit from a high level of efficiency and automation, and this approach would alleviate resource burdens and costs on CCPs.

Conversely, SSTs based on fully customised methodologies would have more material impacts for the participating CCPs. SSTs significantly differing from CCPs' internal stress tests on key aspects such as granularity of data, application of ad-hoc stress scenarios, and specific exposure calculations, will require technical developments in the clearing systems and/or manual intervention. CCPs will need time for the design, implementation and testing of these technical changes, and will need to bear the associated costs. Manual interventions could increase operational risk, and affect the quality and accuracy of the data. They entail additional involvement of expert CCP staff, further diverting these resources from the day-to-day activities of the CCP. All these elements will increase the duration of SST exercises, which already take several months to conduct.

Therefore, we would like to make the following suggestions in order to maximise the usefulness of SST results, while mitigating the resource and cost impacts:

- **Phased approach:** we recommend that authorities adopt a phased approach, and start with reasonably simple scenarios for the first iteration of the SST exercise. Authorities can then look to progressively increase the complexity for subsequent tests, using past experience and feedback from CCPs and other stakeholders. Indeed, in many cases, we consider that the testing methodologies of previous SSTs will be a useful starting point, and should be re-used as much as possible. In particular, the inputs used and the outputs calculated should remain unchanged and flexibility would focus on the scenario definition. This approach would leverage on the implementations, data processing, risk exposures identification and scenario construction from previous exercises, and would leverage the existing methodologies. Each exercise would only require small incremental changes compared to the previous one, which could reduce the burden on CCPs' resources and the time necessary to conduct the SST, without jeopardising the accuracy of the test.
- **Scope:** the scope of the SST will be a key factor for costs and resources. We think particular attention should be paid to the following areas:
 - o **Stress scenarios:** in order to ensure feasibility, and in line with our recommendation of a phased approach above, we believe the scope of SSTs should only consider extreme but plausible scenarios, and initially focus on credit stress scenarios and liquidity stress scenarios. Custodians, settlement banks, liquidity and credit providers and investment service providers could be considered in a second phase after further consultation.
 - o **Clearing services:** we welcome the recommendation under paragraph 31 that "*Authorities may also wish to target certain service lines of the in-scope CCPs, selected for instance according to the product characteristics most relevant to the purpose of the test, or the magnitude of exposures*". In light of the macro-level objective of SST exercises, we believe that minor markets could be excluded, specifically those markets with their own distinct waterfall and small total resources. Authorities could use a materiality threshold to determine which markets should be out of scope. For instance, a cleared market covered by its own default fund could be considered as negligible for the purpose of macro-level SST exercises when its total resources:
 - Are less than €250m-500m;
 - AND



- Represent less than 2%-5% of the overall collateral collected at CCP level (calculated as the aggregation of all margin and default funds contributions across all clearing services of the CCP).

This approach would reduce the workload without affecting the macro-level results of the SST.

- o **Participants:** where a market/clearing service is included in an SST exercise, all its clearing participants should be in scope to maintain the matched book and aid reconciliation of the output.
- **Harmonisation:** It is essential that the framework results in a harmonised and consistent approach across all the authorities in the different jurisdictions. In particular, we believe that aligning data formats and assumptions would greatly ease the SST process. We also recommend that the authority or group of authorities conducting the SST define a set of harmonised scenarios applicable to all participating CCPs.
- **Coordination between authorities:** some CCPs may be systemically important in multiple jurisdictions, and strong coordination on SSTs amongst the various authorities will be crucial. Whenever possible, a single exercise satisfying the objectives of multiple regulators would be helpful to reduce CCP resource burdens and costs. It would avoid a situation where different authorities separately conduct their own SST exercise, either in parallel or in a quick succession, which would be very cumbersome for CCPs.
- **Leverage CCPs expertise:** CCPs can share existing scenarios, key risk factors or provide expertise to help calibrate the SST scenarios if needed. We provide more detailed comments on the involvement of CCPs in section 3 below.

In particular:

i. What would be an appropriate frequency for conducting SSTs?

The appropriate frequency for conducting SSTs will primarily depend on the complexity, duration and level of manual intervention required. As mentioned in paragraph 33 of the consultative report, “*an SST may take several months to conduct due to the complexities associated with the design of a test*”. We therefore believe that SSTs should not be more frequent than once a year for any CCP.

While we agree with the principle under paragraph 34 that “*an SST could be run at an increased frequency if major design aspects remain unchanged and most parts of the SST process are automated*”, we believe there are additional aspects to consider. Indeed, such automation requires technical developments, time for implementation and testing, and generates costs for the CCP. This approach therefore requires a positive cost-benefit analysis, clear communication between authorities and CCPs to identify which specific aspects of the stress tests are best suited for automation (e.g. data record extraction, single positions exposure calculation), and sufficient *ex-ante* visibility and planning for the subsequent SSTs.

ii. Would the use of multiple reference dates sufficiently increase the information provided by a SST exercise to justify a higher resource cost?

In light of the complexity of SSTs, we think that a single reference date using instantaneous shift is preferable. The use of multiple reference dates would add complexity, increase the end-to-end duration of the process, and may not justify higher resource costs.



3. Involvement of CCPs and other stakeholders (see Element 1.iv; Element 2.i, ii)

a. What level of engagement would CCPs and other stakeholders expect to have in the design of an SST exercise? Please explain whether the level of engagement is likely to depend on the particular purpose or design of the SST. How might stakeholder feedback best be sought?

We welcome the recommendations in the consultative report that CCPs be consulted at several stages of the SST exercise. We also fully support the involvement of other key stakeholders, such as market participants of other relevant parties to ensure appropriate representation across the markets, and balance the various interests. However, we expect that CCPs will likely have the highest level of involvement, given their deep expertise and extensive experience of stress testing.

We think the engagement between authorities and CCPs is crucial to maximise the efficiency of the SST exercise, particularly during the early stages. Preliminary exchange of information between the authorities and in-scope CCPs on the objective, scope and methodology of the SST will allow CCPs to provide expert feedback, which will streamline the process and increase the effectiveness of the test. We share the view expressed in paragraph 59 and 60 that the CCPs' input during the later stages will remain critical to enhance data quality, facilitate interpretation, and provide feedback on core risk factors and shocks. This is particularly true in the first iterations of SST exercises, while the overall process is being developed and refined.

Feedback could be sought through an expert working group, supervisory teams, or industry association such as EACH and CCP12.

b. Which roles and responsibilities should CCPs assume – or would CCPs expect to assume – in the design and running of an SST?

We think that CCPs should actively contribute to the scope of the test, and the areas of focus. We believe that CCPs should play an important role in respect of:

- **Technical aspects of the SST exercise:** CCPs' input will be useful in developing the stress scenarios, including on setting extreme but plausible scenarios, identifying core risk factors, calibrating shocks, extrapolation, identifying defaults/failures. We provide more detailed comments under point 5 below.
- **Data collection and protection:** during the SST preparation phase, detailed discussions between authorities and CCPs to define the data template will be crucial for the success of the exercise. The creation of a suitable data template prior to the start of the SST will reduce the need for data manipulation and streamline the process of data collection. In addition, the *ex-ante* agreement between authorities and CCPs on robust information sharing mechanisms would ensure efficient data protection.
- **Application of scenarios to exposures:** we think that CCPs are best placed to perform this task, using their existing valuation methodologies, under the scrutiny of the authorities. CCP methodologies are approved by regulators and constantly monitored. This would be the most efficient approach, especially given the significant amount of inputs needed to calculate theoretical values for complex instruments such as derivatives (underlying prices, option specific data, dividends, expiry date).
- **Analysis of the results:** we support the view in paragraph 54 to involve CCPs in the analysis of the results. CCPs input could support the authorities, and assist in ensuring that data is interpreted consistently and in line with the scope and objective of the SST exercise.



c. What safeguards would ensure that the independence of an SST as a supervisory exercise is maintained?

With regards to the roles and responsibilities of CCPs considered under section 3.b above, we support the considerations under paragraph 60 of the consultative report. Independence of an SST will be maintained since CCPs only play an advisory role. This could potentially be reinforced with further ring-fencing within the CCP, through communication arrangements between authorities and the CCP control functions (e.g. 2nd line of defence, audit, compliance, model validation teams).

In addition, the framework contemplates that feedback will be provided by a wide range of sources, including clearing participants, customers, liquidity providers and custodians, non-participating authorities and groups that have particular perspectives or expertise. This variety should allow the authorities to balance different interests and maintain the SST's independence.

4. Information-sharing, data collection and data protection (see Element 2.iii, Component 4)

a. Do stakeholders perceive any legal or operational constraints on sharing the (individual/named) data required to support an SST exercise? Please describe.

Where the authority conducting the SST is the CCP's home supervisor, the CCP can disclose information as per the existing arrangements between the CCP and the authority. However, in a cross jurisdiction context involving multiple authorities, we agree with the need for robust information sharing arrangements complying with the requirements in each jurisdiction, as outlined in paragraph 63. We also agree with the challenges highlighted in paragraph 64 about potential legal restrictions on whether and how CCPs may share data, for instance in the case of CCPs holding a banking license. We suggest that the authorities consult the in-scope CCPs on these points early in the SST process.

While the framework considers data sharing between authorities, we also suggest considering the case of data shared in working groups which include representatives of the various in-scope CCPs or with other stakeholders. In that scenario, the data should be anonymised, and aggregated as required. These working groups should be subject to effective legal mechanisms to protect information confidentiality and commercially sensitive information for the CCPs.

b. What arrangements do stakeholders consider could be put in place to enhance the effectiveness of data collection and to promote the quality and consistency of data? What are the potential limitations?

We welcome the recommendation in paragraph 145 that authorities seek the input of CCPs on the design of the data template. While we acknowledge that it is challenging to identify all potential issues with the data template prior to the implementation of the SST itself, the design of consistent data templates, including clear definitions for the various data items, expected formats, and level of granularity is essential to reduce the resource burden and costs for participating CCPs. A potential approach could be for the authorities to share with CCPs, during the SST preparatory phase, mock ups of the tables and charts that they would like to include in their final report. It would greatly improve the CCPs' understanding of what the authorities need to achieve, and CCPs would therefore be in a better position to advise on data input.

Like other transversal aspects of SSTs, such as the scope or main principles of the exercise, the design of the data template could be managed through multilateral discussions between authorities and in-scope CCPs. The involvement of CCP industry associations, such as CCP12 or EACH, could be considered to facilitate these multilateral discussions and reach consensus among the different participating CCPs and authorities.



Conversely, we think that the data collection process itself should be exclusively managed bilaterally between the participating CCP and its relevant home supervisory authority. In limiting the number of parties involved and providing a clear unique channel for data exchange, this approach would ensure effectiveness and confidentiality. It would also facilitate discussions and clarifications on data items, which should contribute to improve data quality and consistency.

The home supervisor should be responsible for data dissemination in the event where it needs to be shared with other authorities. Data should be subject, whenever required, to appropriate anonymisation and aggregation, and the process should comply with the information sharing arrangements mentioned under section 4.a.

c. What assurances would stakeholders seek if their data were to be used in an SST exercise?

The assurances required would primarily be:

- **Protection of confidentiality:** protecting customer data and CCP commercially sensitive information is of the utmost importance. Authorities should take all necessary measures, such as anonymisation and aggregation, to ensure that any shared CCP data cannot be attributed to any particular clearing participant, customer or other third party.
- **Data integrity and accuracy:** controls and mechanisms should be in place to maintain the integrity of the data and the accuracy of the results. These aspects are crucial to ensure the SST exercise provides accurate results and meets its objectives.

d. What data protections and safeguards should the authorities put in place?

As mentioned above, authorities should put in place confidentiality agreements and a clear process, including where possible several lines of defence to ring-fence information and limit the risk of inappropriate dissemination. In addition, data exchange should be subject to high cyber-security standards, and rely on encryption and other IT security measures as appropriate.

e. The framework anticipates that CCPs will be a primary source of data for many SSTs. Is this an accurate assumption? Do stakeholders agree that this approach is generally likely to be most efficient from an operational and confidentiality perspective? Are there other potential sources of data? If so, what other data sources could be relevant for conducting an SST and what guidance would be useful to provide to authorities?

We agree that CCP will be the primary source of data for SSTs. As indicated under our response to section 4.a above, a bilateral exchange of data between the CCP and its relevant home supervisor seems the most efficient approach from both operational and confidentiality perspective. It would also ensure the data is accurate and addresses the needs of the SST exercises.

5. Technical content of the framework (see Components 3 and 5)

a. Do stakeholders have any comments on the technical content of the framework, including but not limited to the guidance on setting extreme but plausible scenarios, identifying core risk factors, calibrating shocks, extrapolation, identifying defaults/failures, aggregation procedures and metrics?

The proposed approach is sound. It provides sufficiently detailed principles to promote consistency, while providing flexibility around stress scenarios generation.



We would like to share the comments below on different aspects of the technical content of the framework.

Identification of risk exposure

CCPs' feedback may be beneficial to identify the most relevant cleared markets, the clearing participants, and set of exposures to fulfil the objective of a particular SST exercise. This tailored scope would permit a reduction of the resources required, without significantly impacting the accuracy of the results. From a general perspective, the most relevant risk exposures of a CCP are: i) clearing participant positions, collateral, and investment for credit stress tests and; ii) settlement obligations and liquidity arrangements for liquidity stress tests.

As mentioned in paragraph 72, the set of risk exposures already identified in the CCP internal stress testing would constitute a reasonable starting point, which is constantly subject to the tests of daily market dynamics, as well as frequent review by authorities and internal risk management functions. Considering a different subset of risk exposures would require an upgrade of the CCP internal system and procedure, with a material increase in costs.

Identification of risk sources

CCP could make useful contributions with respect to risk sources. With an in-depth knowledge of their internal stress tests, CCP feedback may provide insights to limit complexity and minimise model risk.

In line with our recommendation for a phased approach, the initial phase of SSTs should focus on a sub-set of the risk sources listed in Table 1 of the consultative report:

- Mid-market price moves of cleared positions, and underlying risk factors like FX
- Mid-market price moves of collateral
- Settlement-related liquidity outflows, by currency (including coupon payments, option premiums, VM payments, settlement payments, etc.)

Concerning the other types of risk sources listed in Table 1:

- Transaction costs could be introduced in later stage and only where neglecting them could invalidate the results, in line with a phased approach. This additional risk source would require several assumptions, introducing additional complexity with a loss of consistency when results of in-scope CCPs are aggregated. Moreover, such costs could potentially be incorporated into the mid-market price moves.
- Jump-to-default and wrong-way risk add a significant layer of complexity. Indeed, these risk sources are arising from issuer specific scenarios rather than macro-economic shifts. We recommend that they are considered in later phases, if necessary.

In light of the inherent complexity of SST exercises, we think that initially focusing on main risk factors as a first step and potentially extending to others is the most sensible and pragmatic approach. Admittedly, such approximations could create slightly inconsistent and potentially implausible joint moves on the full set of risk exposures, which would typically be more visible (relatively speaking) for small/medium institutions. However, this issue could be mitigated by ensuring SSTs' conclusions primarily focus on the macro-level rather than micro-level.

Framing the stress-testing scenarios

We strongly support the approach proposed under paragraph 94 of using in-scope CCPs' internal stress-testing scenarios as *"the basis for the common suite of scenarios to be applied across all of the in-scope CCPs"*. This would ensure consistency in the methodology implemented, while mitigating the resource burden.



Calibrating the shocks to core risk factors

We fully agree with the recommendations in paragraphs 112 and 117 that calibration of final risk factor shocks should be suitably extreme but plausible.

Irrespective of the scenario design, it is easier from a CCP perspective to work from a clear set of input in a predefined format - that is a simple set of risk factors and instantaneous shifts, including guidelines for mapping and other risk factors, similar to the recent ESMA stress test exercise – and run the scenario. Additional assumptions, such as the diffusion of the shock during the SPOR are usually much more difficult to take into account, and do not usually affect the conclusions of the exercise. We would therefore recommend using the simpler approach of instantaneous shocks to balance the efficiency of the SST with the impact on resources.

Extrapolating the shock to other (non-core) risk factors

Non-core risk factors need to be properly identified and their relevance evaluated against the SST's objectives. Otherwise, the inclusion of every non-core risk factor would introduce additional complexity to the SST, without bringing substantial benefits in terms of accuracy. CCPs' expertise can be leveraged in identifying the most relevant non-core risk factors, as well as modelling relative shocks, as referenced in paragraph 120.

We would also like to highlight that, although intuitive and relatively easy, the CAPM approach proposed in paragraph 125 to calibrate shock for non-core risk factor would need to be developed and integrated within the current CCP internal stress-test methodology. In addition, such an approach will be particularly sensitive to the kind of assumptions that are made about the core risk factor used to calculate the beta coefficients.

Specifying defaults or failures and their timings

Considering credit risk, the impact of clearing participant defaults depends on the different structure of the default waterfall in place at the different CCPs and they need to be taken into account when determining potential credit losses. Netting assumptions also need to be consistent each CCPs segregation and pooling rules. Therefore these will vary from one CCP to another.

The authorities should clearly specify the timing of default so that there is no uncertainty concerning the collateral available at the CCP when the default occurs. The option of simultaneous defaults is preferred over sequential defaults as this matches (computationally) what CCPs calculate daily. Sequential defaults would add significant complexity to the test, as the CCP would need to take into account various steps of its recovery plan procedure, including additional management actions occurring between the various defaults. This aspect would require dedicated discussions between CCPs and authorities, and the clear definition of reasonable assumptions in the SST preparation phase. Alternatively, CCPs may supply the complete data about the exposures of the clearing participants' positions in the stress scenarios and the authorities could perform analyses of the effect of default on risk exposures at an aggregate level.

Application of scenarios to exposure

Amongst the different alternatives considered in paragraph 156, we think that leveraging on CCP existent proprietary valuation methodologies is the most efficient, especially in light of the quantity of inputs (e.g. market and supplementary data) and the number of calculations potentially required. CCPs' proprietary methodologies are subject to regulatory approval, and authorities may validate the outputs as required. Moreover, CCP's valuation methodologies are generally standard industry valuation methodologies.



The implementation by CCPs of new valuation methodologies would imply significant effort and technical developments, increasing costs and impacting the time necessary to complete the test.

Treatment of resources

For credit stress tests, as correctly indicated in paragraph 174, the CCP's default waterfall is publicly available in its rulebook, and defines the exact order in which resources are used to absorb losses. The treatment of financial resources during the SST will need to be consistent with each CCP waterfall, and therefore will be CCP specific.

For liquidity stress-tests, additional specific assumptions will be required and should be discussed between CCPs and authorities when preparing the SST exercise:

- The sequence in which resources are used, as it will depend on market conditions (having the most liquid sources such as central bank deposits used first).
- The method to determine excess collateral, as it will depend on the specific margin call procedure performed by each CCP. For instance, the CCP will need to know how to assign bond and cash excess collateral to the different asset classes when it performs a single margin call for all its cleared markets.
- The possible actions of non-clearing participants and their effects on available resources.

b. In designing an SST, what should authorities consider when determining which risk sources and risk exposures to include? How can authorities balance the need for sufficient content with burden?

As pointed out in the consultative report, the main risk sources should be credit risk and liquidity risk. Operational aspects (recourse to credit lines, settlements, etc) could also have material impact on the design and outcome. The objective of the SST should be clearly framed up-front, and may include some pragmatic choices. For instance, if the purpose of the test is to simulate the impact of a major market participant across all in-scope CCPs, the expected output is the overall liquidity drawdown and PnL. Authorities and in-scope CCPs could agree to use approximations (e.g. aggregate figure versus daily PnL) to simplify implementation without affecting the outcome of the test.

Risk sources and risk factors should be primarily based on market activity and exposures. Minor risk factors have low positions and a small overall impact, and would only be potentially relevant for micro-level analysis. Given that the primary focus of SSTs is macro-level impacts, such simplifications would facilitate the exercise.

Finally, leveraging on CCPs existing tools and/or scenarios where possible would simplify the process.

c. In designing an SST, authorities may (need to) make design choices that differ from the expectations set forth in the PFMI and further guidance on stress-testing practices by individual CCPs. Do CCPs foresee issues if authorities proceed in a manner that differs from approaches taken by individual CCPs in their own stress tests? What trade-offs would the authorities need to assess when making those design choices?

Deviating from the PFMI and individual CCPs stress-tests is not an issue in itself, as it ultimately depends on the objective of the SST, which could be clearly set and agreed during the scenario design phase. However, any deviation from existing practice is *de facto* more challenging and comes at a higher effort and cost. In addition, we would suggest that, in that case, disclosure of SST results be accompanied with clear rationale and explanations for these deviations to provide clarity, and avoid incorrect interpretation of the results by the markets.

d. What is an appropriate number of scenarios to include in an SST? What factors should authorities consider when determining the number of scenarios to apply?



The number of scenarios will primarily depend on the scope and objectives of the SST. Scenarios could focus on specific types of stress events (credit crisis, geopolitical crisis, etc). When determining the number of scenarios, authorities should strike a balance between the expected benefits of additional scenarios against the potential resource burdens and costs. Previous experiences of SSTs have shown that the number of scenarios should not exceed three. This number could potentially be increased in later phases, as robust data template and automation reduce the resource and cost impacts.

6. Use of SST results and disclosure (see Component 6)

a. Do stakeholders have views on disclosure of the results of an SST? Are there circumstances in which results should not be disclosed publicly?

We fully support transparency, and believe that the appropriate level of public disclosure would be beneficial for the various CCP stakeholders and other market participants. However, as highlighted in paragraph 196, “*the benefits of broad disclosure must be balanced against the need to protect sensitive data and avoid market impacts*”. Therefore, as noted in the report, results should be anonymised and aggregated to avoid disclosure of sensitive information, with specific care for smaller markets where anonymised result may not be sufficient to prevent identification of participants.

Furthermore, in line with the SSTs objective to provide information at a macro-level, SST results should not focus on any specific participating CCP. Otherwise, it could result in biased interpretation given that:

- Test assumptions would not necessarily reflect the respective CCPs practices, and could further depend on jurisdictions.
- The SST scenario may be prone to model risk. For instance, as mentioned in our comment in section 5.a on identification of risk sources, the stress scenario model risk on non-core risk factors is likely to result in edge cases for medium to small institutions. While the results of SSTs at macro-level would be unaffected, some results on individual portfolios may be.

Finally, we recommend that authorities have bilateral discussions with each in-scope CCP prior to the publication of the results. These discussions would cover the general findings and specific elements that could affect the CCP. Provided the findings are confirmed and their disclosure would attract material attention, a plan to resolve identified deficiencies should be submitted in advance of the publication, in a similar vein to the EBA approach retained for banks’ stress testing. This approach would mitigate the risk of market impacts.

b. Remaining cognisant of confidentiality concerns and the potential need for aggregation and anonymisation of the results, what types of disclosure would stakeholders find most useful?

In line with the SSTs’ objective to provide information at a macro-level, disclosures should primarily focus on systemic risks and implications. It would provide objective elements to identify industry challenges, and foster cooperation between authorities, CCPs and CCP stakeholders.