

QUESTIONS AND ANSWERS (Q&A)

on ESMA's EU-wide stress tests for CCPs

The European Securities and Markets Authority (ESMA) has published today the results of its first EU-wide stress test exercise regarding Central Counterparties (CCPs) which it conducted under the European Markets Infrastructure Regulation (EMIR). This Question and Answers (Q&A) document explains in more detail the overall scope of the stress tests exercise, the different scenarios and methodologies applied.

1. Why are CCPs needed? Why is central clearing necessary?

Financial market infrastructures lie at the heart of the financial system and CCPs are important market infrastructures. They help to reduce the risk of counterparties and provide transparency. CCPs sit between the buyer and seller of a transaction, leading to a less complex and centralised system of exposures. CCPs effectively guarantee the obligations under the contract agreed between the two counterparties, both of which would be participants of the CCP. If one counterparty fails, the other is protected via the default management procedures and resources of the CCP.

2. How many users do these CCPs have and who are they?

These 17 CCPs have more than 900 Clearing Members Union-wide, which can also include multiple entities belonging to one group structure. CCPs are mostly used by financial counterparties, being banks and investment firms.

3. Why is ESMA conducting these tests? Why are they important, are CCPs risky?

CCPs are connected to financial firms and the markets, both locally and globally, which makes them exposed to and a potential source of systemic risk. Given the systemic importance of CCPs, assessing their resilience is important to ensure sound and safe market infrastructures. Stress testing CCP's default waterfall both individually and EU-wide is an important supervisory tool to ensure the sector is safe and resilient to member defaults and market shocks.



4. Which CCPs did ESMA include in the stress exercise?

ESMA assessed the resilience of 17 European CCPs, including all CCPs that are currently authorised under EMIR.

5. Why is ESMA testing CCPs now? Is ESMA concerned about specific issues?

ESMA is mandated by European regulation (EMIR) to initiate and coordinate EU-wide test the resilience of CCPs to adverse market developments on an annual basis. This is the first EU-wide CCP stress test.

6. When was the exercise conducted exactly, based on what data?

The exercise was initiated in 2015 and it involved stressing the actual exposures of CCPs using data provided by the CCPs referencing dates in year-end 2014.

7. What was tested?

ESMA, in cooperation with National Competent Authorities (NCAs) and the European Risk Board (ESRB), tested the resilience of 17 European CCPs by exposing them to adverse market conditions. ESMA's stress test focused on the counterparty credit risk which CCPs may face as a result of multiple CMs defaults and simultaneous market price shocks. The exercise was also complemented with an analysis of the concentration of CCPs exposures and of the potential spill-over effects to non-defaulting CMs.

8. What is counterparty credit risk?

A key risk attached to financial market transactions is counterparty credit risk — the risk that one party to a contract defaults and cannot meet its obligations under the contract. This can lead to a loss for the counterparty on the other side of the contract. If those losses are severe enough, they may cause the affected parties financial distress which, in turn, can have a knock-on effect for their creditors. CCPs are exposed to this risk as they become with respect to a cleared transaction the counterparty of two CMs and are therefore exposed to risks arising from the default of one of its counterparties. In this way, counterparty credit risk is an important channel for contagion and can be a potential source of systemic risk.

9. Is counterparty credit risk the only risk that CCPs face?

No. CCPs are also subject to other types of risks, such as liquidity, investment (credit & market) and operational risks that could in isolation or in combination with counterparty credit risk

challenge their resilience. These additional types of risks have not been considered in this year's exercise. Being this the first EU-wide stress test exercise for CCPs, it was decided to focus on the counterparty credit risk aspects of the CCPs and leave the additional risk dimensions for future exercises.

10. How does the default waterfall of a CCP look like? What are the different levels of protection?

CCPs have rules, arrangements and resources to ensure that they can respond, in an orderly and efficient way, to a defaulting member. For example, a CCP might seek to find new counterparties to take on the positions of the defaulting member and bring the CCP back to a matched book of contracts. This is sometimes achieved through an 'auction' of the defaulter's position among surviving members.

In terms of resources to cover its obligations, CCPs have access to financial resources provided by the defaulting party, the CCP itself and the other, non-defaulting members of the CCP. The order in which these are drawn down helps to create appropriate incentives for all parties (members and CCPs) to manage the risks they take on. These funds are collectively known as the CCP's 'default waterfall'.

11. Is stress testing not part of CCPs risk management?

Yes. CCPs are required to conduct daily stress tests as part of their on-going risk management.

12. What's the difference between a CCP stress test and the one ESMA did?

CCP stress tests mostly focus on the specific CCP and its market environment. CCPs are however inter-connected through common clearing members. Thus, a default of one of the top members in one CCP could trigger a simultaneous default of one or more entities in other CCPs. Individual stress tests run by CCPs cannot reveal any systemic implications because of their reduced scope. Therefore, the EU-wide stress test is an extremely useful tool in assessing the resilience of the system of EU CCPs.

13. What will be the follow-up? What will they have to do?

ESMA has included some recommendations addressed to NCAs in order to conduct the necessary supervisory follow-up. In particular, although EU CCPs seem with respect to the considered scenarios, and taking into account the limitations described in the report, overall well

equipped to face extreme scenarios, a significant part of that protection are pools of resources by the non-defaulting clearing members, which could face significant losses in extreme cases. If these extreme circumstances materialise, this could trigger second round effects via additional losses at the CCP level and the default of additional members. The assessment by CCPs of the creditworthiness of clearing members taking also into account their potential exposures due to their participation in other CCPs is essential in order to identify sources of increased exposure.

Furthermore, in the course of the analysis of the data provided by CCPs, ESMA has also identified that in a number of cases the stress price shocks applied by CCPs for some of their cleared products as part of their own stress testing framework are not at least as conservative as the minimum shocks defined for this exercise or do not replicate the most extreme historic price changes observed, in order to ensure the on-going resilience of CCPs. For these reasons, the recommendations addressed to the NCAs focus also on the revision of CCPs' price shocks used in their stress test methodologies where gaps have been identified in the course of the exercise.

13. Why is the not-prefunded shortfall under the reverse scenario of € 40bn considered a not plausible scenario?

The reverse scenarios are expected to model market developments that go beyond what are considered extreme but plausible market conditions in order to help determine the limits of a model. In the context of the reverse stress analysis complementing the EU-wide stress test, the number of defaulting entities was further increased up to far beyond what was considered under the stressed member default scenarios. In particular, under the considered reverse stress scenarios the maximum shortfall in prefunded resources corresponds to more than 100 members simultaneous defaulting EU-wide. Further stressing already stressed conditions in an effort to identify the limits of a model can lead to unprecedented and implausible assumptions that should not be understood as pass or fail scenarios.

14. Why is ESMA testing for simultaneous CMs defaults and market price shocks?

From a credit risk perspective, it is the combination of CM defaults and simultaneous severe shifts of risk factor prices that could potentially put a CCP at risk. Periods of extreme market volatility in isolation do in principle not pose a specific market risk to a CCP (with the exception of its investment policy which has not been analysed in the stress test exercise) if clearing members are able at all times to honour their commitments and continue to post margin. Similarly, defaults of clearing members without simultaneous market shocks do in principle not

put a CCP at risk. Clearing members post margins and default fund contributions scaled to a very high confidence level assuring CCP sufficient resources to manage a default of a clearing member in normal market conditions, and close out the resulting open positions in a stable market before suffering a loss. Therefore under normal market conditions CCPs are expected to have the resources to withstand multiple defaults of clearing members. Hence, in principle, from a credit risk perspective and with the exception of investment risks, only simultaneous defaults and extreme, adverse shifts of market prices potentially depleting CCP resources could potentially pose risk to a CCP.

15. What exactly are the different scenarios?

The stress test exercise has the following components: Member Default, Market Scenarios consisting of Historical and Hypothetical variants and Reverse Stress Test. They will be explained in detail in the following sections. These scenarios are then complemented by a clearing member knock-on analysis, i.e. checking the impact of the CCP stress test on non-defaulting clearing members.

FIGURE 1: STRESS TEST COMPONENTS

Historical	Hypothetical
Members' Default	Reverse Stress

For the purpose of this exercise, a stress test is a combination of a clearing member default and a market risk factor scenario. The following variants of member default scenarios have been tested:

Clearing member default scenarios

ESMA's stress test exposed CCPs to three different member default scenarios, which include the default: of the two CMs with the largest exposures per CCP taking into account the common

membership across CCPs (scenario A) and the default of the two groups of CMs EU-wide with the largest aggregate exposures to EU CCPs (scenario B) and with the largest exposures also weighted by their probability of default (scenario C).

Scenario	Description
Clearing member default scenarios	
MD-A	For each CCP n_A clearing members (set to 2) with the highest exposure under the selected set of risk factor scenarios are identified. These members are defaulted across all CCPs. This means that a CCP can face multiple members (more than 2) defaulting at the same time.
MD-B	EU-wide n_B corporate groups (set to 2) with the highest aggregate exposure under the selected set of risk factor scenarios are identified. All group members are assumed to default for all CCPs. Also in this case this may count for more than 2 members per CCP.
MD-C	EU-wide n_B corporate groups (set to 2) with the highest aggregate default probability weighted exposure under the selected set of risk factor scenarios are identified. The weighting is based on the multiplication of exposures with default probabilities (which is not contemplated in MD-B). All group members are assumed to default for all CCPs. Also in this case this may count for more than 2 members per CCP.

Market price shock scenarios

ESMA's stress tests applied extreme market price shocks to CCPs. These consist of a range of historical and hypothetical scenarios made up of defined minimum price shocks and a set of hypothetical modelled stress scenarios. The historical and hypothetical scenarios used daily by individual CCPs to size their resources were considered and when needed complemented with additional scenarios to meet the defined minimum price shocks. The exposures under the hypothetical modelled scenarios were estimated by scaling up margin requirements to target a higher confidence level.

Market risk factor scenarios	
Historical scenarios – HiS	Historical scenarios as defined by individual CCPs' stress testing framework to be at least as severe as the minimum scenario list.
Hypothetical scenarios – Hyp	Hypothetical scenarios as defined by individual CCPs' stress testing framework to be at least as severe as the minimum scenario list.
Hypothetical scenarios – Hyp A	Clearing member exposure under stress derived by scaling margin requirement to a higher confidence level with a multiplier (normal distribution ³).
Hypothetical scenarios – Hyp B	Clearing member exposure under stress derived by scaling margin requirement to a higher confidence level with a multiplier (heavy tailed distribution ⁴).

The overall exercise was complemented by an analysis of the inter-dependency of CCPs through their common CMs, including also an assessment of the concentration of CCPs' exposures and the potential spill-over effects to non-defaulting CMs, triggered by the loss absorption mechanism of CCPs.

In addition, a set of reverse stress scenarios was included which further increase the number of defaulting entities in order to look for extreme but plausible scenarios that could have a significant impact on the resilience of EU CCPs.

Reverse Test	Description
RT	Number of defaulting entities required to exhaust prefunded and total (including not-prefunded) financial resources.

The reverse stress scenarios are tested against the same market stress scenarios (price shocks) as the clearing member default scenarios, i.e. HiS, Hyp, HypA, HypB.