Benoît Cœuré: Ensuring an adequate loss-absorbing capacity of central counterparties

Special invited lecture by Mr Benoît Cœuré, Member of the Executive Board of the European Central Bank, at the Federal Reserve Bank of Chicago 2015 Symposium on Central Clearing, Chicago, 10 April 2015.

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Ladies and gentlemen[1]

This Symposium organised by the Federal Reserve Bank of Chicago is a major event for discussions on key themes regarding central clearing, and it is a privilege for me to deliver this lecture in front of such a distinguished audience.

I would like to make some comments on a topic which has been steadily going up the central clearing agenda, namely the need to increase the loss-absorbing capacity of central counterparties (CCPs) beyond their current levels.

Because of their growing systemic importance, CCPs need to be exceptionally robust, and that means being able to cope with even extreme losses. And to achieve this, it may well be necessary to increase their existing loss-absorbing capacity. But what is less clear at the moment is whether this can be done by having CCPs observe the existing, tough international standards, which have been introduced only relatively recently. Or whether there is a need for new requirements that are more demanding or more specific. And if so, how can we best do that in a way that preserves the benefits of central clearing, provides the right incentives to CCPs and to their clearing members, and strengthens the financial system as a whole?

These questions go to the heart of the current work by the two international standard-setting bodies most directly involved, the Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO), as well as by the Basel Committee for Banking Supervision (BCBS) and the Financial Stability Board (FSB). Today I will cover some of the issues authorities are tackling.

The global regulatory agenda implemented since the crisis has made CCPs considerably safer.

As a result of the G20's commitment to introduce clearing obligations, CCPs have become "super-systemically important", and ensuring their safety is thus critical. Over the past few years, the global regulators (CPMI-IOSCO, FSB and BCBS) have offered guidance in many areas to increase the resilience of CCPs and their participants. Let me give you four examples:

First, rigorous risk-management standards via the Principles for financial market infrastructures: the PFMI were adopted by CPMI-IOSCO in 2012, implementing ambitious standards covering every aspect of a CCP's risk management framework. These Principles are significantly tougher than those they replace and their consistent implementation across jurisdictions is currently being monitored.[2]

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[1] I wish to thank Pierre Marmara for contributing to this speech. I remain solely responsible for the views expressed here.

[2] See CPMI-IOSCO, *Implementation monitoring of PFMIs – Level 1 assessment,* August 2013; CPMI-IOSCO, *First update to Level 1 assessment report,* May 2014; CPMI-IOSCO, *Implementation monitoring of the PFMIs: Level 2 assessment report for central counterparties and trade repositories* (European Union, Japan, United States), February 2015.

Second, guidance on CCP recovery and resolution: in 2014, as a supplement to the PFMI, CPMI-IOSCO published comprehensive guidance on financial market infrastructure (FMI) recovery.[3] It considered the types of tools that CCPs and other FMIs can use to deal with severe financial problems that could threaten their existence. In addition, the FSB adopted a framework on FMI resolution.[4]

Third, specific treatment of banks' exposures to CCPs: the BCBS has revised its previous Basel II capital framework, which applied a zero capital charge to banks' exposures to CCPs, in order to better capture the risks stemming from the financial system's increasing reliance on CCPs. One of the main features of this revised framework is the preferential treatment given to exposures to qualifying CCPs, i.e. CCPs supervised in a manner consistent with the PFMI.

Finally, enhancing the understanding of CCP risks via increased transparency: in order to ensure CCPs are providing participants with the necessary information to evaluate the risks linked to clearing, CPMI and IOSCO have published two disclosure frameworks. The *Disclosure Framework and Assessment Methodology,*[5] released in December 2012, and *The Public Quantitative Disclosure Framework*[6] for CCPs, released in February 2015, which require CCPs to disclose information on topics such as the size of their credit risk, liquidity risk, collateral, margins, business risk, custody and investment risks. Let me add that public disclosure requirements are particularly important for indirect members who, unlike direct members, do not play a direct role in the CCP's risk governance.

Should authorities be doing more to address potential weaknesses in CCP risk management?

As I just mentioned, the regulatory standards have been significantly strengthened since the financial crisis. However, catastrophic losses beyond those already covered by the regulatory requirements could still occur. Given the critical role of CCPs in financial markets, regulators need to think the unthinkable. Indeed, stress events concerning CCPs are – thankfully – rare: the most recent example of a CCP failure was the collapse of the Hong Kong Futures Exchange clearing house in 1987. A more recent – albeit less dramatic – stress event was the uncertainty caused by the default of a clearing member at KRX, the South Korean CCP, which caused it to tap its mutualised default fund, and revealed that clearing members were not always aware of their potential liabilities towards the CCP. When such events occur, they have the potential to shut down the markets they serve. With the emergence of super-systemic CCPs serving global derivatives markets, a CCP failure could be a catastrophic event of global proportions.

In September 2014, the gross notional outstanding amount of centrally cleared positions was estimated at USD 169 trillion for OTC interest rate derivatives, and at USD 14 trillion for credit derivatives.[7] The sheer magnitude of these figures (around ten times the GDP of the United States or European Union) gives us an idea of the severity of the potential consequences from a stress event at a major global CCP.

Authorities see the distinct benefits of central clearing and wish to set proper market incentives for participants to move away from bilateral trading and into the centrally cleared world. Mandatory central clearing allows risks to be pooled, monitored and properly

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3 See CPMI-IOSCO, *Recovery of Financial Market Infrastructures,* October 2014.

4 See FSB, *Key Attributes of Effective Resolution Regimes for Financial Institutions, FMI Annex,* October 2014.

5 See CPMI-IOSCO, *Disclosure Framework and Assessment Methodology,* December 2012.

6 See CPMI-IOSCO, *Public Quantitative Disclosure Standards for Central Counterparties,* February 2015.

7 See FSB, *Eighth Progress Report on Implementation of OTC Derivatives Market Reforms,* November 2014.

managed. However, pushing more complex products towards mandatory central clearing makes risk management more challenging, and therefore may increase the risks to which CCPs and clearing members are exposed. Authorities may need to assess whether overly complex products should really be submitted to central clearing, so as to ensure CCPs can continue pooling risks in a safe and efficient way.

In recent months, concerns have been expressed regarding the adequacy and consistency of the level of risk management across the CCP landscape. At this stage, it is too early to say whether current regulations are insufficient. New requirements may well prove necessary but the impact and coverage of the existing regulatory framework should first be comprehensively assessed.

Authorities have started exploring and analysing potential issues with the granularity and consistency of global standards, and will continue to do so in the coming months. For instance, CPMI-IOSCO has put in place a substantial implementation monitoring programme of the PFMI across jurisdictions:[8] the monitoring work so far has shown that many jurisdictions have made good progress in adopting the PFMI in their domestic regulatory frameworks. A more detailed analysis of whether the content and the outcome of implementing legislation, regulations and policies are complete and consistent is currently under way.

Furthermore, the granularity of margin practices is being reviewed, and CPMI-IOSCO is now assessing – in cooperation with the industry – the consistency of CCP stress testing practices.[9] Consistency does not need to be achieved by imposing standardised models on all CCPs – a "one size fits all" approach may not be appropriate, and regulators may be more effective by relying instead on minimum standards, which all CCPs would be required to apply to their models. The outcome of these exercises will be of crucial importance in identifying and calibrating the need for further regulatory action.

Staying clear of pitfalls and misconceptions.

If gaps were to be identified in CCP risk management standards, requiring the adoption of new global requirements, we would need to make sure the debate is being framed in an appropriate manner.

First of all, there may be no single best solution for addressing concerns related to CCP safety. Optimal solutions may vary according to the business model of the CCP (including its ownership structure), according to the CCP's risk profile (including the types of products cleared – i.e. cash products or derivatives), and according to the size and concentration of exposures within clearing members (including the extent of indirect clearing). Regulators may wish to keep a certain degree of flexibility when they make their final recommendations.

We also need to be cautious when drawing analogies between CCPs and banks. CCPs have in fact a fundamentally different business model and liability structure. CCPs are not leveraged and they do not actively take risk: barring the default of a member or an operational incident, their net risk exposure at any point in time is always equal to zero. Another major difference is the limited extent to which CCPs are expected to cover their exposures via their own funds, as the concept of "bail-in" is directly built into their risk management. Indeed, coverage is achieved to a very large extent via pre-funded resources provided by the clearing members themselves. Bail-in is a new concept for banks, but not for CCPs. In addition, CCPs can rely on contractual arrangements to allocate losses among their members. The statutory tools implemented by banking supervisors for ensuring the

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8 See footnote 2 above.

9 http://www.bis.org/press/p150311.htm.

resilience of banks may therefore not be appropriate for CCPs, and we should be cautious about any comparisons we make. They could be misleading.

Furthermore, taxpayers should obviously not be liable for any losses incurred by CCPs. Losses should be entirely borne by the CCPs themselves and their participants, in an appropriate and proportional manner, and in line with prudent incentives. In particular, the involvement of indirect participants should be carefully considered: their contribution to the loss allocation process should take into account the fact that they have no contractual agreements with the CCP, and, unlike direct members, have no part in the CCP's risk governance process (and therefore have no say in the CCP's risk management).

Lastly, the issue of compensating clearing members for losses incurred during a recovery or resolution process remains comparatively unexplored and deserves careful attention.[10]

Let me now turn to the various tools that authorities could use to address potential shortcomings in CCP risk management and loss-absorption capacities. These options have very different implications, namely in terms of sharing the funding needs between CCPs and participants, and in terms of providing the right incentives to CCPs' stakeholders.

Increasing the level of pre-funded resources held by CCPs to cover default losses beyond the current standards.

One possible conclusion from the current review of the international implementation of regulatory requirements, and the analysis and assessments being carried out in parallel, could be that standards regarding margins and stress testing *are* sufficiently stringent, but are *not implemented consistently* across CCPs and jurisdictions.

Authorities could also conclude that the standards themselves are not sufficiently strict and that there is a need for CCPs to bolster the arrangements that may be used in a pre-recovery stage. This might require CCPs to cover their exposures beyond the "cover 2" standard currently set by the PFMI for systemically important CCPs.

Bear in mind that prudent margins and an adequately sized default fund are the very foundations of a CCP's risk management. If CCPs appropriately cover credit and market risks via their initial margins, and adequately stress test their exposures under extreme conditions, there will be only a residual chance that they will not be able to cover default losses.[11] We should remember that cover 2 is already a very stringent criterion, which has never been observed in a real crisis. However, as I stated earlier, the unthinkable may happen.

The next question is how this increase in resources should be funded. Recently, there have been some calls to increase the contributions made by CCPs themselves to the total amount of financial resources posted – the so-called "skin in the game". In the European Union, CCPs already have to contribute 25% of their required regulatory capital to the default waterfall, which would be used before tapping the mutualised default fund. Should we go further, and demand a larger contribution from CCPs?

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[10] On the one hand, participants may be more willing to share losses if the CCP provides some form of compensation instrument proportionate to the size of the losses they incur. Such instruments could include, for example, senior claims on profits of the future CCP or on the defaulted clearing member's estate, or a share of the CCP's equity. On the other hand, we need to ensure that any compensation to clearing members is delivered in a proportional way and is appropriately timed, so as to leave the CCP with sufficient resources to absorb all residual losses and to safeguard or re-launch its viable activities.

[11] For an illustration based on actual derivative positions, see Heath, A., Kelly, G., and Manning, M., "Central counterparties loss allocation and transmission of financial shocks", Reserve Bank of Australia, Research Discussion Paper, 2015–02, March 2015.

Such a step would raise many challenges. "Skin in the game" should primarily serve to provide incentives for the CCP's management and shareholders to ensure their risk management framework is sufficiently prudent, and limits excessive risk taking by clearing members. It should not be seen as a significant financial resource to cover a CCP's exposures: indeed, the purpose of CCPs is to mutualise counterparty risk, not to remove it from clearing members altogether and bear it themselves. CCPs are risk poolers, not insurance providers.

In fact, a substantial increase of "skin in the game" could provide clearing members with a false sense of security, by reducing their potential contribution to the loss-allocation process.[12] This could lead them to be less vigilant in monitoring risks, which may have severe consequences for the safety of CCPs. Furthermore, in order to represent any meaningful part of the default waterfall, "skin in the game" would need to increase dramatically, thus completely changing the size of CCP balance sheets and their business models. This could even defeat the purpose of mandatory central clearing by pushing CCPs to dramatically increase the cost of clearing, or to compromise on their risk management in order to retain profitability.

In sum, it seems reasonable that an increase in prefunded resources, should it become necessary, should be mainly borne by clearing members.

Strengthening CCP recovery capabilities via specific recovery tools.

An alternative conclusion to our current discussions could be that cover 2 *is* an appropriate standard for ensuring CCP resilience in a pre-recovery phase, but that more reassurances are needed to ensure CCPs can adequately cope with a recovery situation if they face tail losses.

Let me stress that, here too, it is too early to state whether and, if so, what additional guidance regarding recovery capacities will be needed. However, let us think about the ways in which authorities could improve CCP recovery tools if the need did arise.[13]

In a recovery situation, a significant amount of additional funding could come from *ex post* cash calls on non-defaulting clearing members, also referred to as "default fund top-ups" or "emergency assessments". This could provide CCPs with ample resources to avoid a complete depletion of their capital, and would share the funding burden across the whole clearing membership. Such assessments are usually allocated according to each member's contribution to the CCP's default fund. This way of allocating assessments, provided it is transparent, gives members a degree of predictability about what will happen. Nevertheless, they could expose surviving clearing members to sudden and very large liquidity demands which they would have to source in the market, and could thus have strong contagion effects[14] – even pushing members to close out their contracts and leave the CCP, rather than face the spiralling costs of remaining a member. For these reasons, such tools may prove problematic for bank supervisors.

Another tool which is frequently mentioned in discussions on CCP recovery is variation margin gains haircutting (VMGH). In my view, this tool may have a certain advantage over ex post cash calls, in the sense that it would alleviate the need for members to raise extra

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[12] While central clearing protects banks against idiosyncratic risk, it can reduce their incentives to protect themselves from non-diversifiable shocks, hence the need for regulation to provide a strong incentive framework. For a theoretical discussion, see Biais, B., Heider, F., and Hoerova, M., "Clearing, counterparty risk and aggregate risk", European Central Bank, October 2011.

[13] For a discussion of loss-allocation rules, see also Elliott, D., "Central counterparty loss-allocation rules", Bank of England, Financial Stability Paper, No. 20, April 2013.

[14] See Heath, A., et al. (2015, op. cit.) for a simulation of the impact of different loss allocation mechanisms.

liquidity to meet their obligations: the CCP would simply perform a write-down of its outgoing payment obligations to clearing members with "in the money" positions. To the extent that this tool would hit members which are not liquidity- constrained, it is more reliable and the systemic impact could be less. So although it could lead to unequal loss allocation among clearing members and create ex ante uncertainty on the burden sharing of the cost of default,[15] it could also mitigate pro-cyclicality concerns to a certain extent.

Another series of measures to be considered by authorities are the voluntary or forced allocation of open positions among clearing members. These measures would help CCPs re-establish a matched book following a participant default. In my view, if authorities choose to promote these tools, we should take care to encourage *voluntary* measures to the extent possible. Indeed, forced allocations could lead to effects which are difficult to control, for example by requiring participants to take on positions which are not closely related to their clearing activities, and for which they cannot adequately measure risks, particularly in volatile market conditions. A last-resort option could be a partial or complete tear-up of open positions, but this could cause significant disruption to the products and markets where contracts are terminated, and therefore should be avoided to the extent practicable.

A solution which seems to be supported by parts of the industry would be to dedicate an additional tranche of the CCP's capital for recovery needs. While increases could be discussed, I believe it may not be advisable – for the reasons already outlined above – to place the entire burden of extra loss-absorption on CCPs.

For the sake of completeness, I would also like to mention alternative recovery tools such as the proposal by a consortium of insurers to provide coverage for extreme tail losses, or the idea that CCPs should issue bail-in-able debt instruments. Such solutions deserve consideration as they can enhance market discipline, but they require further analysis before being truly considered as viable options by authorities. For example, it is unclear whether there would be a deep enough market for CCP bail-in-able debt, given the tail nature of the risk being priced, and the risk that demand will be exhausted once the total loss-absorbing capacity proposal for banks is calibrated and implemented.

You will note that I have not made any mention of emergency liquidity provision to CCPs by central banks. A fundamental principle is that it is up to the CCP to maintain adequate and robust liquidity arrangements, both in normal and crisis times. If a clearing house believed that it could easily and readily access central bank liquidity, this would weaken its incentives to make the necessary arrangements. Of course, there can be cases where all the necessary arrangements have been made but the CCP is facing losses beyond what was predicted and needs temporary liquidity support while remaining solvent. In that case, this option will be available and there should be no technical obstacles to using it. But there can be no commitment from the central bank to provide liquidity, and that's a basic principle of central banks in general, not only for CCPs but for banks as well.[16]

In sum, while some of these tools appear more appropriate than others, all of them imply drawbacks, and authorities will need to proceed cautiously if they favour one over another. CPMI-IOSCO is currently reviewing existing CCP recovery mechanisms, including loss allocation tools, and will consider developing more granular standards for CCP recovery planning if that is needed.

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[15] See Duffie, D., "Resolution of Failing Central Counterparties", Graduate School of Business, Stanford University, 17 December 2014.

[16] The recent agreement between the ECB and the Bank of England is no exception to this rule. We'll extend the scope of our standing swap line in order to facilitate the provision of multi-currency liquidity support to CCPs established in the UK and euro area, but again, there is no pre-commitment and the provision of liquidity remains at the full discretion of the central bank issuing the respective currency.

However, even enhanced recovery tools may not be enough to prevent the CCP from being resolved, first of all because it is impossible to estimate ex ante the size of potential uncovered exposures, secondly because under certain circumstances it might be preferable to resolve a CCP – especially if the market has lost confidence in this CCP as a going concern.

Effective CCP resolution as an ultimate tool.

Lastly, we need to assess whether more assurances are needed so that a CCP can be effectively resolved and can re-launch its viable operations, and whether the measures discussed before are either ineffective or out of line with market preferences.

Much like recovery frameworks, CCP resolution frameworks are currently being designed and implemented across jurisdictions. The FSB is reviewing CCP resolution regimes and resolution planning arrangements. Based on this review, it may develop minimum standards for CCP resolution planning, strategies and tools without resorting to a government bailout, and without resulting in contagion to other parts of the financial system. Meanwhile, the European Commission is preparing specific EU legislation.

If, after an in-depth assessment, authorities come to the conclusion that an additional source of financial resources is needed, what form should these extra funds take?

Let me first reiterate that any bailout of CCPs with public money should be categorically excluded. Resolution plans should fully allocate losses to CCPs and their participants.

Having clarified this point, I can potentially see four main ways of increasing resolution capacity:

The first would be to increase the amount of regulatory capital held by CCPs, and explicitly ring-fence a share of this capital as a means to recapitalise a new entity in a resolution scenario. In the EU, CCPs are required to hold sufficient own resources to cover operating costs over a six-month period – this requirement could be strengthened, not only in order to cover for a potential wind-down, but also to meet the funding costs of a new entity. For the reasons described above, I believe there would be important drawbacks in relying only on CCPs to increase their regulatory capital. CCPs should provide a proportional contribution to the resolution process, but should not bear all the costs.

A second policy option could be to make use of initial margin haircutting as a means to fund the resolution process and establish a new CCP. While this would provide CCPs with significant resources, mutualised across the entire clearing membership, and could provide a base for re-launching a viable CCP with some degree of certainty over the sharing of losses, it would also imply a significant change in the way clearing members understand their liabilities towards the CCP – indeed, in certain jurisdictions, initial margin currently has to be bankruptcy-remote. It would be difficult to predict the potential pro-cyclical effects resulting from this tool, as well as the effects on incentives for members to take part in central clearing. As a result, this tool should be carefully considered for resolution scenarios, and should perhaps be ruled out of the recovery toolkit altogether.

A third option would be to set up a cross-CCP resolution fund, much like the Federal Deposit Insurance Corporation or the Single Resolution Mechanism recently established for banks in Europe. This fund would be financed by risk-based contributions from CCPs and clearing members, but could also be financed by other stakeholders who may benefit (directly and indirectly) from the risk-management services provided by CCPs. While this idea is conceptually appealing, it may be very demanding to implement. Such a resolution fund would need to be established on a cross-jurisdictional basis, which implies significant coordination challenges, and it would have to be phased in over a large number of years. I frankly don't see the political momentum for such a solution.

A fourth option would be for each CCP to establish its own dedicated recapitalisation fund, funded mainly by clearing members, with a proportional contribution from the CCP itself. The recourse to this recapitalisation fund would certainly create many challenges. The resolution authority must be able to identify certain clearing services which are still viable, and these must be insulated from the losses affecting the non-viable clearing services. However, if we are to go in the direction of new requirements for CCP resolution, I believe this could be a promising avenue to explore.

Should additional pre-funded capital or liquidity resources be needed for cases of resolution, this will have to be shared in a fair way among all relevant stakeholders. Global coordination and consistency is therefore important in order to ensure a level playing field.

Looking beyond the debate on CCP loss-absorbing resources, we should keep in mind that there are other key questions regarding resolution.

Indeed, the success of a resolution process will not only depend on whether the CCP has adequate resources, but also on whether it is actually resolvable (for instance, whether its viable activities can be separated from its non-viable ones and transferred to another CCP). This will depend to a large extent on the operation and design of the CCP being resolved – e.g. whether its viable clearing activities are insulated from losses from the non-viable ones through separated default management silos. It will also depend on whether or not positions from the CCP which undergo resolution can be successfully transferred to another entity in a safe and timely manner, via an interoperability link or some other means. Further analysis will probably be required regarding the means to facilitate the porting of positions in a resolution scenario, in order to guarantee substitutability across CCPs.

Another issue to consider is the extent to which resolution authorities should be able to impose a temporary stay on early termination rights for CCP participants, which may be normally triggered upon the entry of the CCP into resolution.[17] This topic will surely feature prominently in the discussions on the implementation of CCP resolution regimes.

In sum, debates regarding the appropriate level of CCP resources should not prevent us from addressing other crucial issues linked to resolvability.

Keeping the systemic perspective in sight

I have repeatedly made the point that increasing the level of financial resources available to CCPs requires careful consideration, in view of the potential costs for all relevant stakeholders. I believe it may also be necessary to examine the effects of any additional CCP requirements on the financial system as a whole.

First and foremost, it will be important to ensure that incentives for central clearing are not negatively affected. Efforts by authorities to strengthen the robustness of the financial system would be compromised if additional funding costs were to push participants away from CCPs and back into the bilateral world. It will therefore be crucial to ensure consistency between new rules affecting CCP loss absorption and the collateral regime for bilateral trades, and the capital regime for banks' exposures to CCPs.

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[17] The exercise of early termination rights by a large number of participants could place further strain on the failing CCP and prevent it from continuing critical operations and services. According to the FSB Key Attributes, a resolution authority should not impose a moratorium on payments, settlement and deliveries related to the core functions or other critical services of the CCP (Key Attributes, Appendix II, II-Annex 1, paragraph 4.17). A short stay could however give the resolution authority time to assess the situation, determine how best to exercise its resolution powers and limit systemic disruption. See Duffie, D., and Skeel, D., "A Dialogue on the Costs and Benefits of Automatic Stays for Derivatives and Repurchase Agreements", University of Pennsylvania Law School, January 2012.

More generally, in recent months, market participants have expressed concerns that, due to the significant amount of new regulation being discussed and implemented worldwide, it is sometimes hard to get a full picture of the regulatory architecture currently being set up. I therefore believe it is important for authorities to continue to work together, as they have done since the crisis, and to assess the combined effects of global regulation on the market and on incentives to mitigate risks. An example of this type of cooperation is the work carried out by the OTC Derivatives Assessment Team, which brings together representatives of several regulatory committees, and which published a report in 2014 examining the incentives for central clearing in the current regulatory landscape.[18]

Part of this work will involve looking at how regulations applied to CCPs interact with those applied to other entities in the financial system, namely banks. Thanks to the work being carried out by CPMI-IOSCO on stress testing and margins, we are beginning to get a better picture of how risks are being managed across the whole CCP landscape. In my view, an important step for the future will be to put together CCP stress testing and the stress testing carried out by big global banks (one way of doing this could be to define common stress scenarios, and see how the entire system performs). Authorities, CCPs and market participants need to assess the extent to which banks will be able to absorb losses passed on to them by a CCP, and how a recovery or resolution process will affect the banking system.[19]

In this respect, authorities will need to pay particular attention to pro-cyclicality. As already mentioned, many of the proposed instruments to increase CCP loss absorption will have a significant cost for clearing members. We need to be aware that, very often, these costs will arise during a stressed market situation, when clearing members may already be facing significant liquidity pressure. Authorities responsible for CCPs and those responsible for banks should try and work towards a common understanding on pro-cyclicality, in order to ensure consistency in their regulatory actions.

Lastly, I believe we also need to move towards a more systemic view of the interconnections between CCPs and clearing members, namely via the channel of indirect participation. The PFMI already require CCPs to identify, monitor and manage material risks arising from tiered participation arrangements. Here too, the CCP authorities and banking authorities should join forces and get a broader picture of this issue, making use of the available data and developing network analyses.[20] CPMI-IOSCO together with the BCBS and FSB will soon launch joint analytical work in this field.

Conclusion

I have made the case that the global regulatory agenda implemented since the crisis has made CCPs considerably safer. If these requirements are applied consistently, significant improvements to CCP loss-absorbing capacities may not be required. CPMI and IOSCO are currently reviewing CCP risk-management practices on a global scale and will identify any areas where greater consistency or granularity is needed.

If the need did arise for further loss-absorption capacities, we will have to make sure any new requirements provide the right incentives for CCPs and their members, offer authorities a

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[18] See OTC Derivatives Assessment Team, *Regulatory reform of over-the-counter derivatives: an assessment of incentives to clear centrally,* October 2014.

[19] See also Bailey, D., "The Bank of England's perspective on CCP risk management, recovery and resolution arrangements", Speech at the Deutsche Börse Group and Eurex Exchange of Ideas conference, London, 24 November 2014.

[20] On the interconnectedness of CCPs, see Wendt, F., "Central counterparties: Addressing their Too Important to Fail Nature", IMF Working Paper, WP/15/21, January 2015.

certain degree of flexibility and do not create disincentives for central clearing. Whether we choose to bolster the tools for CCP resilience, CCP recovery or CCP resolution, we will need to be aware of potential trade-offs in the way losses are allocated, and remember that there may be no ideal approach. I have provided an overview of the pros and cons of these various approaches.

It will be crucial not to lose sight of the systemic view when discussing CCP loss absorption, and to pay close attention to the interconnections between CCP exposures and bank exposures, and to the impact of CCP risk-management on pro-cyclicality in the global financial system.

I look forward to learning from our discussions today and I hope they will shed new light on some of the trade-offs I have identified.

Thank you for your attention.