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IMPACT ASSESSMENT

Accompanying the document

**Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE
COUNCIL**

**on a framework for the recovery and resolution of central counterparties and amending
Regulations (EU) No 1095/2010, (EU) No 648/2012, and (EU) 2015/2365**

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TABLE OF CONTENTS

1	INTRODUCTION.....	4
	1.1. Recovery and resolution of financial institutions.....	4
2	PROCEDURAL ISSUES AND CONSULTATION OF INTERESTED PARTIES.....	6
	2.1 Procedural issues.....	6
	2.2 External expertise and consultation of interested parties.....	7
	2.2.1 Stakeholder consultation.....	7
	2.2.2 External expertise.....	7
3	POLICY CONTEXT, PROBLEM DEFINITION AND SUBSIDIARITY.....	8
	3.1 Background and context.....	8
	3.2 Overview of legislative framework.....	9
	3.3 Problem definition.....	12
4	THE EU'S RIGHT TO ACT AND JUSTIFICATION.....	19
5	OBJECTIVES.....	21
6	PRINCIPAL POLICY OPTIONS, COMPARISON AND ANALYSIS OF THE IMPACTS.....	25
	6.1 Baseline scenario.....	25
	6.2 Possible options to increase preparedness of supervisors and CCPs for crisis situations.....	25
	6.3 Possible options to improve early intervention arrangements for authorities.....	30
	6.4 Possible options to ensure resolution of CCPs in a timely and robust manner (scope of tools and trigger for using them).....	34
	6.5 Possible options to carry out resolution (first set of concrete resolution tools).....	39
	6.6 Possible loss and position allocation tools (second set of concrete tools in addition to section 6.5) for resolving a CCP.....	46
7	OVERALL IMPACTS OF THE PACKAGE.....	59
	7.1 Small and medium sized institutions (SMEs).....	59
	7.2 Administrative costs.....	60
	7.3 EU budget.....	60
	7.4 Fundamental rights.....	60
	7.5 Social impacts.....	62
	7.6 Third country impacts.....	63
	7.7 Environmental impacts.....	64
	7.8 Summary of impact on key stakeholder groups of preferred options.....	65
8.	MONITORING AND EVALUATION.....	70

ANNEX I – GLOSSARY	71
ANNEX II – ROLE AND FUNCTION OF CENTRAL COUNTERPARTIES	76
ANNEX III – INTERNATIONAL WORK ON CCPS (AND OTHER FINANCIAL MARKET INFRASTRUCTURES) (CPSS/CPMI-IOSCO AND FSB).....	77
ANNEX IV – RELEVANT US REGIME REGARDING CRISIS MANAGEMENT OF NONBANK FINANCIAL INSTITUTIONS	86
ANNEX V – THE BENEFITS AND CONSEQUENCES OF CCP CLEARING.....	88
ANNEX VI – DATA ON EUROPEAN CCPS AND RECENT TRENDS IN THE INCREASE IN OTC CLEARING	90
ANNEX VII – COMPETITION AND CCP INTEROPERABILITY	96
ANNEX VIII – HOW A CCP COULD FAIL.....	97
ANNEX IX – CCP FINANCIAL RESOURCES “WATERFALL” AND INCENTIVES	99
ANNEX X – FAILURES AND NEAR-FAILURES OF CCPS	101
ANNEX XI – NUMERICAL EXAMPLES OF LOSS-ALLOCATION TOOLS AND STAKEHOLDER POSITIONS.....	103
ANNEX XII – OTHER OPTIONS NOT CONSIDERED IN THIS IMPACT ASSESSMENT	108

1 INTRODUCTION

This impact assessment considers the costs and benefits of an EU-wide recovery and resolution regime for central counterparties (CCPs).¹ A clearing house, acting as a CCP, intervenes between counterparties to financial transactions (through novation²) to assume and carry out their rights and obligations, acting as the buyer to every seller and the seller to every buyer for a specified set of contracts.³ They clear financial transactions of various types (such as in equities, derivatives and repos) for their clearing members (typically large banks) and the clients of their clearing members (e.g. pension funds and asset managers). This concentration of positions allows them to be netted down to considerably reduce total exposures of the CCP, as well as of its members and clients⁴.

CCPs contribute to market stability by imposing credit and other risk management requirements on their members and clients and by mitigating most of the risks inherent in post-trading activities.⁵ In exchange for taking on and netting their positions, the CCP collects collateral ('margin') from clearing members to cover its liabilities in case any participant defaults on its obligations vis-à-vis the CCP. By doing so, they manage the risks inherent in financial markets (e.g. counterparty risk, liquidity risk and market risk), and therefore improve the overall stability and resilience of financial markets. In the process, they become critical nodes in the financial system, linking multiple financial actors and concentrating significant amounts of their exposure to diverse risks. Effective risk management of the CCP and robust supervisory oversight is therefore key to ensure that such exposures are adequately covered.

The scale and importance of CCPs in Europe and beyond is set to increase via the implementation of another G20 commitment, namely the obligation to clear standardised derivatives transacted over-the-counter (OTC) through central counterparties. This obligation is implemented in the EU by the Regulation on OTC derivatives, central counterparties and trade repositories (EMIR).⁶ That Regulation also sets out comprehensive prudential requirements for CCPs, as well as requirements regarding the operations and oversight of CCPs.

1.1 Recovery and resolution of financial institutions

Financial markets are pivotal for the functioning of modern economies. The more integrated they are, the more efficient the allocation of economic resources and long run economic performance will be. However, at the same time, to improve the functioning of the Single Market in financial services, it is important to have procedures in place to ensure that if an important financial institution that is active in this market faces financial

¹ Banks and investment firms are subject to Directive 2014/59/EU establishing a framework for the recovery and resolution of credit institutions and investment firms http://eur-lex.europa.eu/legal-content/EN/TXT/;ELX_SESSIONID=2hCkTyTNGyHG1hNnQmvLry3rTZt5TTskrMILLv12RFZ9hNy9Ibl7!-1897320616?uri=uriserv:OJ.L .2014.173.01.0190.01.ENG

² In economic terms, novation is the replacement of one contract with another or, in this case, one contract with two new contracts.

³ See annex II for more details on the role and function of CCPs in financial markets.

⁴ Clearing members are direct participants in CCPs, often banks, with contractual responsibilities for discharging the financial obligations arising from that participation, while clients are entities which clear transactions on the CCP on the basis of contractual relationships with clearing members.

⁵ See annex V for details on the benefits of CCP clearing

⁶ Regulation (EU) No 648/2012

distress or is at the point of failure, such an event does not de-stabilise the entire financial market and damage growth across the wider economy.

Any failing institution should in principle be liquidated under normal insolvency proceedings. Where such an approach might jeopardise financial stability, interrupt the provision of critical functions to the economy, or affect other market participants disproportionately, and there is a public interest in doing so, resolution tools should be applied by public authorities to ensure the institution can fail in an orderly manner. Such action would avoid the need for the State to bail out the institution concerned with taxpayer money, to stem the threat of financial instability.

In this context, CCPs may enter into severe financial distress, exceeding its EMIR resources, due to (i) "member default", when a clearing member(s) is unable to pay its obligations as they fall due or (ii) "other (non-default) causes", in relation to, for instance, operational, business, or legal reasons (such as cyber-attacks, fraud or investment losses). Recovery actions would be undertaken by the CCP with the aim of addressing the cause of the financial distress and restoring its long-term viability. If these actions are insufficient, authorities could place the CCP into resolution with the aim of preserving financial stability and the broader economy, minimising costs of the CCP failure on taxpayers and restoring the viability of critical functions of the CCP. They would do this by allocating losses on private sector participants (e.g. shareholders, clearing members and their clients), to the extent possible and in line with the European Convention of Human Rights, and would wind up the CCP's non-critical functions in an orderly manner. As such, the measures would be designed to preserve the ability of the financial system to fund economic growth and avoid the socio-economic costs of a financial meltdown. Recovery and resolution measures would especially relevant where a financial institution is of such a size, market importance and interconnectedness that its distress or disorderly failure would jeopardise the normal functioning of the financial system, which would in turn adversely impact the real economy, as is the case of CCPs.

Due to their different functions and business models, the risks inherent in banks and CCPs vary. Consequently the failure of a CCP may arise, and will resonate, in different ways in comparison to a bank. Based on the responses to the 2012 Commission consultation on a possible recovery and resolution framework for non-banks⁷ and on the views of wider commentators, it has been acknowledged that it would be insufficient to create a CCP recovery and resolution regime by merely transposing the tools and powers, in particular those in relation to resolution, of the EU Bank Recovery and Resolution Directive (BRRD)⁸. Instead the preference would be to tailor specific tools and powers more to the underlying business models of CCPs.

More broadly, from an international perspective, G20 leaders have endorsed an approach developed by the Financial Stability Board (FSB) to address the risks which the failure of any financial institution (bank, financial-market infrastructure, insurance undertaking, etc.) of global systemic relevance could have on the financial system via comprehensive

⁷ http://ec.europa.eu/internal_market/consultations/2012/nonbanks/consultation-document_en.pdf

⁸ Directive 2014/59/EU, the Bank Recovery and Resolution Directive (BRRD). As part of the steps to integrate responsibilities for bank supervision and resolution in the Banking Union, the latter has been complemented by a Single Resolution Mechanism (Regulation (EU) No 806/2014). See http://ec.europa.eu/internal_market/bank/crisis_management/index_en.htm http://ec.europa.eu/internal_market/finances/banking-union/index_en.htm

and appropriate recovery and resolution tools.⁹ Furthermore, the Committee on Payment and Settlement Systems/Market Infrastructures (CPSS/CPMI) and the International Organisation of Securities Commissions (IOSCO) have developed guidance on recovery plans for financial market infrastructures, including CCPs, while the FSB has issued further guidance on the application of its Key Attributes of Effective Resolution Regimes to financial market infrastructures, such as CCPs, as well as insurers.¹⁰ Finally, in December 2013, the European Parliament adopted an own-initiative report calling on the Commission to propose appropriate EU measures to ensure that the impacts of a potential failure of key financial institutions, most notably CCPs, could be mitigated.¹¹ A proposal to create a European framework for the recovery and resolution for CCPs had been signalled in the Commission's Work Programme for 2015, but was carried forward in order to take into account further input from the continuing international work on CCP resilience, recovery and resolution, carried out by CPMI/IOSCO, the FSB and the Basel Committee on Banking Supervision (BCBS).

2 PROCEDURAL ISSUES AND CONSULTATION OF INTERESTED PARTIES

2.1 Procedural issues

The first meeting of the impact assessment steering group took place on 10 April 2013. The second meeting took place on 5 September 2014 and the third one on 11 March 2015. DGs involved in the steering group were ECFIN, TRADE, SG, LS, JUST and COMP. The minutes of the final steering group meeting were submitted to the Impact Assessment Board on 8 April 2015. The Board meeting took place on 6 May 2015. While a positive opinion was given, the Board recommended improving the following areas:

- (1) the rationale for acting at EU level, by better explaining why and how CCPs might fail and by describing what the related risks are including their cross-border dimension;
- (2) the option section, by better justifying the small range of alternatives considered and clarifying whether the options are different to those retained for banks;
- (3) the assessment of impacts, by better explaining how significant administrative costs are expected to be, who will be affected and how by the different options, and which categories of stakeholders support which options.

These have been addressed and incorporated in this final version.

⁹ Key Attributes of Effective Resolution Regimes for Financial Institutions, Financial Stability Board (November 2011) http://www.financialstabilityboard.org/publications/r_111104cc.pdf Updated in October 2014 with sector-specific annexes http://www.financialstabilityboard.org/wp-content/uploads/r_141015.pdf

¹⁰ <http://www.bis.org/cpmi/publ/d121.pdf>;

http://www.financialstabilityboard.org/wp-content/uploads/r_141015.pdf

¹¹ <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P7-TA-2013-0533+0+DOC+XML+V0//EN>

2.2 External expertise and consultation of interested parties

2.2.1 Stakeholder consultation

A public consultation on a possible recovery and resolution framework for non-bank institutions¹² was carried out between 5 October and 28 December 2012. 67 replies were received¹³. On the whole, the consultation indicated that the priority should be to develop an EU-wide recovery and resolution framework for CCPs.

Respondents generally agreed that, like the BRRD for banks, an EU framework for the recovery and resolution of CCPs should, ensure continuity of their critical functions, minimise exposure to losses for taxpayers from their failure and improve legal certainty for their clearing members and clients. They recalled that this necessitated tailoring the BRRD tools to the specificities of CCPs' business models.

2.2.2 External expertise

The Commission has gained valuable insights through its participation in the discussions and exchange of views informing the CPMI/IOSCO report providing guidance on the recovery of financial market infrastructures. The Commission has also attentively followed the work relating to the resolution of other non-bank financial institutions carried out by the FSB. On their part, in elaborating the reports proposing guidance on (respectively) recovery and resolution, both CPMI/IOSCO and the FSB asked interested parties to provide comments on their draft guidance documents and published the responses received.¹⁴ On the whole, these international level consultations for Financial Market Infrastructures confirm the views expressed in the Commission's own consultation, and provide some additional feedback on the relative merits of some of the proposed policy options and resolution tools.

On 22 November 2013 the Commission services held a first meeting with Member States' experts to discuss the international work being carried out by the FSB and CPMI-IOSCO. Member States agreed on the need for a CCP recovery and resolution legal framework in the EU. Further meetings of Member States' experts took place on 19 December 2014, 30 September 2015 and 27 June 2016.

A summary of the meetings can be found at <http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=2392&NewSearch=1&NewSearch=1> The Commission services took account of the opinions voiced by stakeholders in preparing the legislative proposal.

¹² http://ec.europa.eu/internal_market/consultations/2012/nonbanks/consultation-document_en.pdf

¹³ A summary is available at: http://ec.europa.eu/internal_market/consultations/2012/nonbanks/summary-of-replies.pdf

¹⁴ Public responses can be found at: <http://www.bis.org/publ/cpss109/comments.htm> and: https://www.financialstabilityboard.org/publications/c_131121.htm

3 POLICY CONTEXT, PROBLEM DEFINITION AND SUBSIDIARITY

3.1 Background and context

CCPs constitute the "central nervous system"¹⁵ of financial markets by playing a key role in managing systemic risk. In consequence, a significant amount of financial risk is concentrated in a CCP. The annual value of transactions cleared by CCPs is in the trillions of euros. For instance, the volume of centrally cleared OTC transactions at the end of 2012 was estimated to total USD 346.4 trillion, of which USD 341.4 trillion was attributable to interest rate derivatives and USD 5 trillion to credit default swaps (CDSs).¹⁶ More disaggregated data from end June 2015 shows that for interest rate derivatives alone, the gross outstanding notional amount was estimated to be **USD 175 trillion** (around **48% of notional outstandings**¹⁷) and for OTC credit derivatives, the gross outstanding notional amount of **USD 2.4 trillion (12% of the total amount outstanding)** had been centrally cleared.¹⁸ In the US, the trend for centrally cleared trades has been stabilising at 80% of weekly aggregate transaction volumes for credit derivatives and 70% for single-currency interest rate derivatives, respectively since Q4 2013.¹⁹

Effective regulation and robust supervision of CCPs is thus essential, which is assured in the EU by EMIR. However, no system of rules and practices can preclude failure absolutely.²⁰ While actual failures have been rare and have not occurred recently, those that have taken place have been brought on by vulnerabilities inherent in CCPs' business models. These include the collection of insufficient initial margin by the CCP against the risks it is exposed to, an inability by clearing members to meet sudden large margin calls and problems relating to the ability of CCPs and authorities in grasping the build-up of the risks concentrated in CCPs and the implications of this for the wider market.²¹

Most European market infrastructures for the clearing and settlement of financial transactions were originally created to serve domestic needs. Today, many CCPs clear several product classes, from listed and OTC financial and commodity derivatives to cash equities, bonds and repos, and provide their services across national borders. However, despite the expansion and diversification of the services offered by CCPs, the EU landscape for post-trade (clearing and settlement) services continues to be fragmented along national lines, resulting in inefficiencies and higher costs for cross-border transactions.²²

¹⁵ See "Derivatives Clearing and Settlement: A Comparison of Central Counterparties and Alternative structures", Bliss, Robert and Robert Steigerwald, *Economic Perspectives*, 2006, 30 (4, Fourth Quarter, Federal Reserve Bank of Chicago), p.22-29. Available at http://www.chicagofed.org/digital_assets/publications/economic_perspectives/2006/ep_4qtr2006_part2_bliss_steigerwald.pdf

¹⁶ See annex VI

¹⁷ Cf. 9th FSB progress report on OTC derivatives reform (2015), page 14.

¹⁸ *Ibid.*, page 15.

¹⁹ *Ibid.*, page 15.

²⁰ See annex VIII for details on how CCP failure may arise

²¹ See annex X for examples of CCP (near)-failures

²² See annex VII for details of recent developments

Twenty-one CCPs currently serve the securities and derivatives markets in the European Economic Area (EEA).²³ Some serve primarily domestic markets and a single exchange, while others are present in multiple markets and serve trading venues in several EU countries. Many of the largest global banks are members of multiple CCPs, illustrating the potential for contagion. For example, 24 globally systemically important banks (G-SIBs) are members of Eurex; or the other way of looking at it is that a designate G-SIB such as BNP Paribas is a member of at least five EU CCPs. Annex VI provides an overview of the main CCPs operating in Europe and their ownership models, the values of cash securities they cleared in 2011,²⁴ the classes of OTC derivatives they offered to clear in April 2014, recent trends in the increase and subsequent stabilisation of central clearing of OTC derivatives, and the memberships of the largest global banks of leading global CCPs. The ownership of CCPs has been evolving over the past decade, shifting from the traditional user-owned structure to a wider range of ownerships and models, including hybrid models where private shareholders, clearing members and exchanges share ownership. Some CCPs are still owned and governed by their members, while others are fully or part-owned by non-members, either as listed companies or as part of a group, which may itself be listed.²⁵

Studies and publicly available figures suggest that CCPs that operate on a for-profit basis are very profitable.²⁶ The revenue of a CCP derives from fees charged for clearing, penalties on late settlement and from earnings on collateral supplied by clearing members. Publicly available figures suggest that equity CCPs typically derive about 80% of their revenue from fees and 20% from net interest earnings. CCPs that clear fixed income and derivative instruments derive a significantly higher portion of their revenue, over 40%, from net interest earnings as the transactions based on these asset classes require a greater amount of collateral from the clearing members.

3.2 Overview of legislative framework

In force since August 2012, EMIR requires CCPs to observe high prudential, organisational and conduct of business standards. National supervisors are tasked with the full oversight of their activities. In response to the G20 commitment, EMIR also requires standardised OTC derivatives to be centrally cleared in a CCP.

²³ See annex VI. The list of CCPs can also be found at: [Http://mifiddatabase.esma.europa.eu/Index.aspx?sectionlinks_id=24&language=0&pageName=CENTRAL_COUNTERPARTIES_Display&subsection_id=0](http://mifiddatabase.esma.europa.eu/Index.aspx?sectionlinks_id=24&language=0&pageName=CENTRAL_COUNTERPARTIES_Display&subsection_id=0)

²⁴ Based on comparative tables for securities clearing statistics, European Central Bank statistics, Table 2 and 3 at: <http://sdw.ecb.europa.eu/reports.do?node=1000001583>. The figures are computations of all the domestic figures as no aggregated figure is available.

²⁵ See table 14 in "Market structure developments in the clearing industry: implications for financial stability Report of the Working Group on Post-trade Services", Bank for International Settlements, November 2010, p64. <http://www.bis.org/publ/cpss92.pdf>. See also annex VI

²⁶ Jean-Sébastien Fontaine, Héctor Pérez Saiz and Joshua Slive, "When Lower Risk Increases Profit: Competition and Control of a Central Counterparty," Bank of Canada Working Paper 2012-35, November 2012 <http://www.bankofcanada.ca/wp-content/uploads/2012/11/wp2012-35.pdf>; "Profits surge at Ice's EU clearing house," Financial News 13 March 2014; "LSE earns more from profit-sharing deal at clearing house," Financial Times 13 November 2013

In line with international standards,²⁷ EMIR requires CCPs to have adequate operational contingency arrangements, including to ensure that losses arising from the possible default of two members (i.e. a default event) can be covered by the margin of the defaulted members and a default fund, which is financed through contributions collected from the CCP's members, as well as other own resources. In addition, CCPs that are interoperable with other CCPs are required not only to collect margin from their members to cover against risks on their platform, but also to exchange margin between each other. A predefined “waterfall” of financial resources determines the order in which margins, default fund contributions and other resources, such as shareholder equity, are called upon to absorb losses.²⁸ A CCP typically reinvests the contributions collected from its members. However, any reinvestment must be available promptly and therefore must be made in highly liquid financial instruments. EMIR accordingly sets out limitations on the types of investments that a CCP can make. It also sets out the specific capital requirements applicable to CCPs that aim to, *inter alia*, ensure that a CCP is adequately protected against risks not covered by its default waterfall (i.e. other (non-default) events). These include business, legal and operational risks. The resources ought also to enable the CCP to be wound-up or restructured over an appropriate time span; however, these are taken to be used primarily for the purposes of a gradual wind-up due to general business losses rather than for constituting adequate reserves to cover losses in a scenario where losses arise quickly²⁹ (for instance in relation to, for example, cyber-attacks, fraud or investment losses).

Recognising the systemic role of CCPs, the BRRD also provides safeguards that seek to avoid the failure of an EU bank or EU investment firm, typically the clearing members of CCPs, resulting in unmanageable losses for CCPs. For example, these institutions would have to continue to honour, during their resolution, their obligations towards CCPs even as obligations towards other creditors could be suspended.³⁰ The institutions' obligations to CCPs and other financial market infrastructures maturing in less than seven days are also excluded outright from bail-in to protect their functioning.³¹ Beyond this, while CCPs are not excluded from potentially suffering losses on their outstanding exposures in relation to a failed bank, banks' obligations to CCPs and other financial market infrastructures are mentioned explicitly among the liabilities which could be exempted from bail-in for overwhelming financial stability reasons.³² As a result, the likelihood of CCPs' incurring large losses in the event of the failure of an EU clearing member bank or EU investment firm is substantially reduced. However, certain CCPs, in particular those which have non-EU clearing member banks as well as those which clear commodity trades, might have non-financial entities as clearing members (such as energy companies), whose potential failure would not be fully subject to these BRRD safeguards.

²⁷ Principles for Financial Market Infrastructures by the Committee on Payment and Settlement Systems and the Technical Committee of the International Organisation of Securities Commissions (April 2012) <http://www.bis.org/publ/cpss101a.pdf>

²⁸ See annex IX for a general discussion on how the waterfall works.

²⁹ EMIR Article 16 and Commission Delegated Regulation (EU) No 152/2013 supplementing EMIR with regard to regulatory technical standards on capital requirements for central counterparties <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:052:0037:0040:EN:PDF>

³⁰ BRRD Articles 69, 70, 71, 80

³¹ BRRD Article 44(2)(f)

³² BRRD Article 44(3)(c)

Recovery and resolution measures for CCPs aim to complement, not duplicate, aspects of the existing EMIR framework. They would further bolster the preparedness of CCPs to mitigate financial stress, provide authorities with further insight into the operations of the firms within their jurisdictions and provide them with a set of powers to deal with the declining health of a firm in a coordinated manner and, where necessary, resolve the firm, restoring its critical functions preserving financial stability, and minimising the cost to taxpayers. The authorities would only resort to resolution powers, if normal insolvency proved to be insufficient to meet these aims.³³

Box 1 – Recovery and resolution regime for CCPs in the EU

No Member State has yet developed a full national regime for CCP recovery and resolution. However, the United Kingdom (UK), Italy, France and Germany have partial regimes, where their effectiveness is uncertain.

The UK

Through a series of amendments to existing legislation between 2011 and 2013, the UK has introduced a number of measures to recover and resolve CCPs established in the UK. They have required CCPs to draw up recovery plans and establish loss allocation provisions, which would be exercised once the default resources required under EMIR are exhausted³⁴. The CCP supervisor – the Bank of England – may exercise an overriding power of direction for broader financial stability reasons (beyond compliance with EMIR and UK prudential requirements) which might be used, for example, to direct a CCP not to use its loss allocations to tear up all contracts in a service. Furthermore, during the resolution of the CCP, the resolution authority – a functionally separate area of the Bank of England – would be availed with the ability to sell part or the whole of the CCP business to a solvent purchaser and to establish a bridge institution. A safeguard exists regarding the financial interests of those affected by transfer orders made in relation to CCP resolution, whereby HM Treasury (the finance ministry) may make a compensation order in exceptional circumstances relating to CCPs.

UK legislation establishes that the resolution objectives are, with no order of priority, to maintain the continuity of CCP clearing services; protect public funds; avoid, to the extent possible, interfering with property rights; protect and enhance the stability of the financial systems of the UK; and protect and enhance public confidence in the stability of the financial systems of the UK.

The use of any resolution power is deemed to be a last resort measure, but can be effected prior to insolvency. In this light, prior to their use, the resolution authority would have to determine that: (a) a CCP is failing, or likely to fail, to satisfy the recognition requirements;³⁵ and (b) having regard to timing and other relevant circumstances, it is not reasonably likely that (ignoring the resolution powers) action will be taken by, or in respect of, the CCP that will enable the CCP to maintain the continuity of any critical

³³ It is recalled that insolvency regimes are not harmonised across the EU. Regulation (EC) No 1346/2000 on insolvency proceedings determines which national insolvency regime applies should a company including a CCP or a CSD with a cross-border presence within the EU fail.

³⁴ See section 3 of <http://www.legislation.gov.uk/ukxi/2013/1908/contents/made>

³⁵ The term “recognition requirements” means the requirements resulting from section 286 of the Financial Services and Markets Act 2000.

clearing services³⁶ it provides while also satisfying the recognition requirements. HM Treasury would have to further determine that it would be in the public interest to place the CCP in resolution rather than insolvency.

The UK recovery and resolution regime for CCPs are in line with the FSB key attributes; however, to be fully compliant loss absorption measures would need to be implemented.

Italy

Italy, in 2007, extended their resolution framework for financial market infrastructure to CCPs, which includes regimes for Special Administration (with the purpose of continuing the CCP) and for Compulsory Administrative Liquidation (i.e. winding up).

A CCP could enter into the Special Administration regime (SAR) if there have been serious irregularities in the management of the CCP and / or serious capital losses. Whereas, a CCP could be placed under the Compulsory Administrative Liquidation regime (CALR) if the Bank of Italy has withdrawn its authorisation or the courts have declared the CCP to be insolvent. As part of this regime, the operations of the CCP are frozen, all CCP payments are suspended, and contacts are terminated. The Bank of Italy, the designated resolution authority, may permit operations to continue on a temporary basis.

The Bank of Italy, the designated resolution authority, in both cases would have a wide discretion of powers. It could, for example, direct the activities of the special administrator or commissioner appointed under the SAR and require that it has to provide prior consent for any initiative taken by the liquidator. However, as initial margin is bankruptcy remote it would not be touched in either regime. Other powers include, the ability to enforce cash calls as well as any previously agreed position allocation mechanisms (such that non-defaulting clearing members take on the positions of the defaulted clearing member(s)).

France and Germany

In France and Germany, CCPs³⁷ are required to have a bank licence. As such, their authorities would be able to exercise the powers available to them under the BRRD. However, as all BRRD tools would not be suitable for the resolution of CCPs the regime would not be effective.

3.3 Problem definition

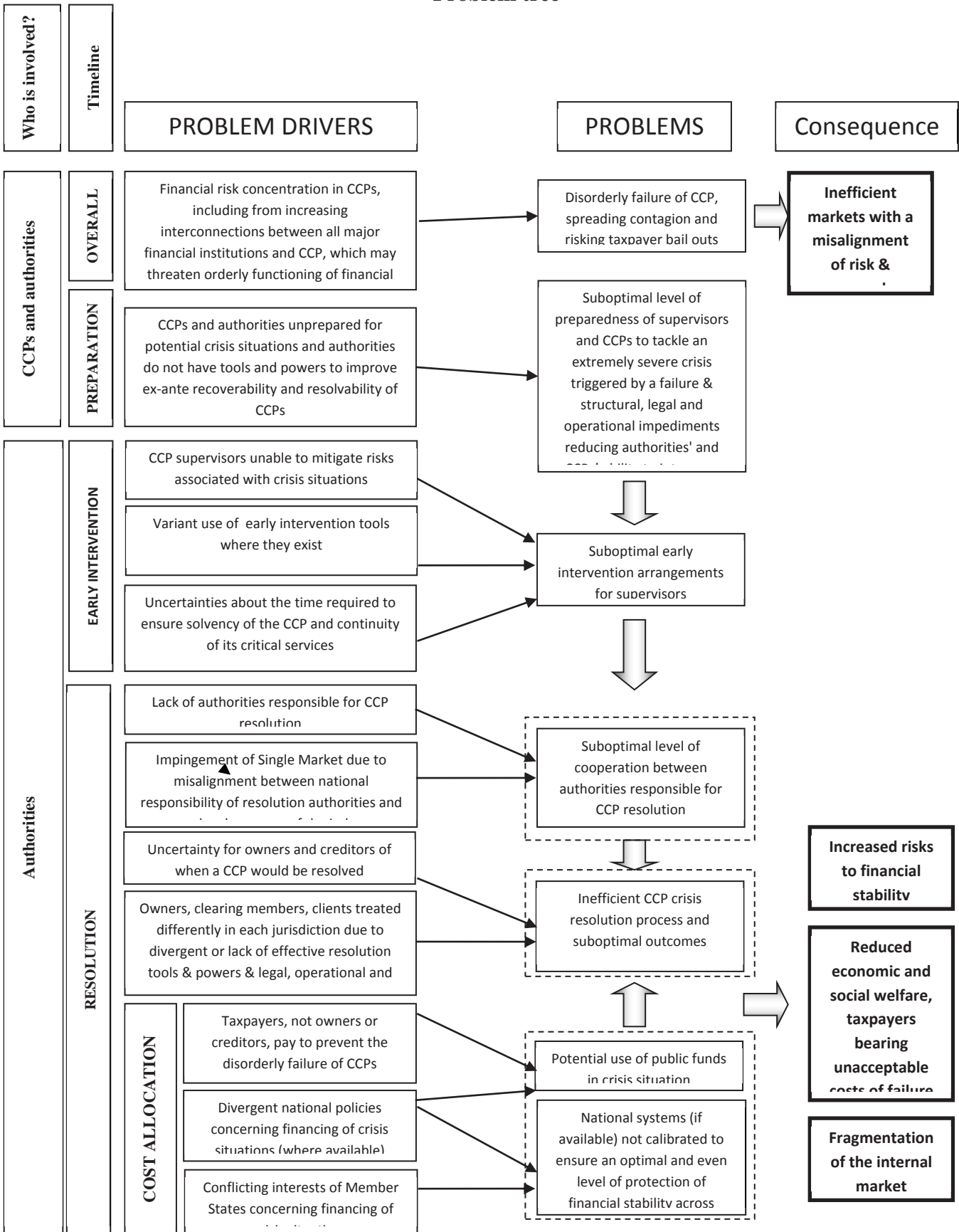
This section outlines the problems posed by the absence of appropriate powers and tools to prevent and mitigate the failure of CCPs from jeopardising financial stability³⁸.

³⁶ The term “critical clearing services” means central counterparty clearing services the withdrawal of which may, in the Bank of England’s opinion, threaten the stability of the financial systems of the United Kingdom.

³⁷ LCH.Clearnet SA in France, and Eurex Clearing and ECC

³⁸ See also section 7.2. of the Economic Review of the Financial Regulation Agenda, SWD (2014) 158 http://ec.europa.eu/internal_market/finances/docs/general/20140515-erfra-working-document_en.pdf

Problem tree



Why is there need for action?

CCPs are market infrastructures that improve the efficiency of financial trading through, for example, addressing information asymmetries and reduce complexity, as well as mitigate and manage counterparty, liquidity and operational risks.³⁹ This proved particularly valuable during the financial crisis; while a significant number of defaults could be observed in bilaterally traded OTC derivatives, this was not the case for centrally cleared contracts. As a direct result of regulatory requirements, like EMIR, the importance of CCPs further expands.⁴⁰ The mandatory centralised clearing of OTC derivatives should mitigate the overall risks linked to these derivative transactions, which have more often than not taken place on a bi-lateral basis, and should consequently result in net benefits of roughly 0.12% of EU GDP per year.⁴¹

Given the centrality of CCPs to the financial system, the increasing systemic importance of CCPs gives rise to concerns. As such, CCPs have themselves become a source of macro-prudential risk, as their failure could cause significant disruption to the financial system⁴² and would have systemic effects. For instance, mass, uncontrolled termination and close out of contracts cleared by CCPs could lead to liquidity and collateral strains across the market, causing instability in the underlying asset market and the wider financial system. Like some other financial intermediaries, CCPs are also potentially susceptible to “runs” due to clearing members losing their confidence in the solvency of the CCP. This could create a liquidity shock for the CCP as it attempts to meet its obligations to return the principal collateral (i.e. initial margin). To counter this, some of their members and other participants (i.e. the clients of clearing members) note that greater transparency regarding, for instance, the size of the margin pool at the CCP and the other elements of CCP default waterfalls⁴³ would reduce their vulnerability to destabilising runs, as such transparency would allow clearing members and clients to better assess their exposures at all times⁴⁴.

CCPs or their clearing members may also face acute liquidity strains during periods when credit or funding markets are disrupted. A CCP trying to liquidate a defaulted clearing member’s initial margin (i.e. principal collateral), to for example meet the variation margin obligations of the defaulted clearing member, under these conditions might have to sell it at fire sale prices, thereby exacerbating the losses imposed on the CCP and perhaps even resulting in a CCP default, as it is unable to meet the obligations of the defaulted member (which it has assumed), even with the resources available to it under the default waterfall. Fire sales can dislocate and create further panic in already stressed

³⁹ Craig Pirrong, “The Economics of Central Clearing: Theory and Practice”, ISDA Discussion Papers Series No.1, May 2011.

⁴⁰ Data on European CCPs and recent trends in the increase in OTC clearing are provided at annex VI.

⁴¹ See Commission Staff Working Document, “Economic Review of the Financial Regulation Agenda” SWD (2014) 158, section 4.3.2 http://ec.europa.eu/internal_market/finances/docs/general/20140515-erfra-working-document_en.pdf

⁴² See e.g. Paul Tucker; “Are clearing houses the new central banks?” Over-the counter derivatives symposium, Chicago, April 2014; http://www.chicagofed.org/digital_assets/others/events/2014/annual_over_the_counter_derivatives_symposium/tucker_clearinghouses_new_central_banks_tucker_2014.pdf

⁴³ See annex I for a glossary of terms commonly used in this impact assessment

⁴⁴ See e.g. JP Morgan, “What is the resolution plan for CCPs,” September 2014 <http://www.jporganchase.com/corporate/About-JPMC/document/resolution-plan-ccps.pdf?M=22b2d037-ca48-42e1-a49e-53a5e0667db4>

asset markets, thereby creating losses for and imposing costs on other market participants. Similarly, a CCP might not be able to obtain credit via private transactions, or may only receive it at punitive rates (or haircuts).

The increasing systemic importance of CCPs can be categorised in terms of: (i) the increasing amounts centrally cleared, (ii) concentration risk and (iii) contagion effects.

(i) *Increased volumes centrally cleared transactions*: as intended by regulators, large shares of OTC derivatives transactions are already centrally cleared (see section 3.1 and annex VI).

(ii) *Concentration risk*: the concentration risk associated with a CCP arises almost as a natural consequence of its features, namely by becoming critical nodes in the financial system. The notional amounts referenced above are cleared through a small number of available CCPs. For instance, in the EU, six CCPs exist for credit products and fifteen exist for interest rate products. In the US, there are five and nine authorised CCPs for these two product types, respectively. The degree of concentration also depends on the structure of the underlying markets. Another factor is that due to the complexity of derivatives markets, a limited number of CCPs (from a cost perspective) specialise in dedicated products; which in turn tends to add to concentration of the sector.⁴⁵ Publically available data on clearing members per CCP appear to confirm this picture. For example, Bank of England supervised CCPs have between 18 and 98 clearing members, depending on the product type.⁴⁶ (See also annex VI, part E that shows which G-SIBs are members of which CCPs.)

(iii) *Direct and indirect contagion*: the expansion of the use of central clearing will fundamentally alter the topology of the global financial system, with CCPs becoming even more crucial nodes of activity, where all major financial institutions will be interconnected via their (direct and indirect) linkages to CCPs. Central clearing thus reconfigures interconnections and counterparty risk between systemically important financial institutions in favour of centralised risk management such that these risks are mutualised and offset against each other during normal day-to-day practices. In this context, the failure of a CCP could result in widespread financial contagion as a financial problem in one institution is propagated to many other institutions via their linkages to the CCP's different contagion channels.

CCP failures

A CCP may enter into financial distress as a result of (i) clearing member default (i.e. default events) or (ii) due to business, legal or operational reasons, such as losses on the CCP's investments, or due to fraud or cyber-attacks (i.e. other (non-default) events).

Failures of significant CCP clearing members have happened several times during the last 25 years. CCPs have had to manage defaults of Drexel Burnham Lambert (1990),

⁴⁵ Cf. ESRB Macro-prudential commentary No 6 (2013), page 2.

⁴⁶ Cf. The Bank of England's supervision of financial market infrastructures – Annual Report (2015), page 22.

Barings (1995), Griffin (1998), Enron (2001), Refco (2005), Lehman Brothers (2008) and MF Global (2011).⁴⁷

Going back further in history, evidence can also be found that CCPs had been placed in insolvency, even before OTC derivatives were required to be cleared by CCPs, due to a *combination of improper risk management practices and the default of CCP participants*. For instance, Caisse de Liquidation (Paris) in 1974, the Kuala Lumpur Commodity Clearing House in 1983 and the Hong Kong Futures Guarantee Corporation in 1987.⁴⁸ A near failure was experienced with the Chicago Mercantile Exchange (CME) in October 1987. (See annex X for further details on default events.) The failure of these CCPs, which happened during times where financial markets were not as globally interconnected or complex as now, led to, for example the closure of the sugar market for two years and government bail-outs.

Current risk mitigation techniques

As mandated by EMIR, ESMA is currently developing a framework for stress testing EU CCPs. These tests will examine, *inter alia*, the limitations of each CCP's default fund protection, to identify the scenarios under which a CCP's default resources would be exhausted. This data has not been available at the time of drafting this impact assessment; hence it has relied on external studies.

The already quoted October 2014 Financial Stability Paper by the Bank of England⁴⁹ examines whether the "cover 2" requirement (the EMIR requirement whereby the CCP should have sufficient resources to meet the default of the largest one or two clearing members) remains prudent enough if the number of members of a CCP or the distribution of exposures among members changes. It uses a market-consistent approach, which is based on actual stressed losses over initial margins and default estimates, as well as an analytical approach, based on theoretical loss distributions. Both methods suggest that "cover 2" is a sufficiently prudent for most risk distributions found in practice. However, the requirement might represent a significantly weaker safety net if the distribution of exposures among its clearing members becomes more uniform. For these distributions, the paper concludes that higher financial resources might be needed to ensure robustness of CCPs. Simulations from CCPs, based on their own exposure data, demonstrate that such scenarios under which all defaulters' funded resources would be exhausted go beyond relevant historical stress events, including the recent financial crisis.⁵⁰

Hence, this impact assessment notably considers proposals for resolution tools which are different and independent from increased, EMIR pre-funded financial resources to address these tail-risk events cost-effectively. Further quantitative analysis of potential losses and their effects could be possible in the future once the ESMA stress tests

⁴⁷ Cf. IMF working paper 15/21 (2014) 'Central Counterparties: Addressing their Too Important to fail Nature', page 11. It is noted that almost all of these cases could be solved by closing out or transferring the positions of defaulters, without impacting other clearing members.

⁴⁸ Ibid.

⁴⁹ Ibid, page 7.

⁵⁰ Cf. CME group, Balancing CCP and Member Contributions with Exposures (2014), page 3, or LCH Clearnet: CCP Risk Management, Recovery and Resolution (2014), page 13.

conclude and CCPs publish further data on their default waterfalls as per requirements issued by CPMI-IOSCO⁵¹.

Stakeholder views

Respondents (a mix of CCPs, clearing members and clients) to the Commission's consultation agreed that CCPs are systemically relevant as they are critical financial market infrastructure, implying the need for effective recovery and resolution arrangements that are consistent with the FSB globally agreed principles.⁵² The implementation of the G20 requirement for standardised OTC derivatives to be centrally cleared was recognised as a compelling argument in favour of taking action to address this source of systemic risk. Almost all stakeholders (with the notable exception of some clients of clearing members) agreed that, to safeguard financial stability, the continuity of key operations of CCPs should be the priority. All agreed that the costs of a CCP failure should not fall on taxpayers. Many considered that while it will be critical to ensure that recovery and resolution arrangements for CCPs are credible and robust, these should not place excessive burdens on members or their clients to cover potentially significant liabilities arising from the default of a major clearing member (i.e. default events) or, even less, for those arising from internal CCP risk management errors (i.e. other (non-default) events).

The benefits of central clearing for the overall stability of financial markets are beyond doubt. The G20 aim of greater CCP-clearing to mitigate the systemic risk inherent in otherwise poorly overseen networks of opaque bilateral transactions is not put into question. Empirical cases of CCP failure are few but do exist. In any case, the above scenarios of CCPs encountering and spreading overwhelming financial difficulties should not be neglected, in particular in a world where financial markets are globally interconnected. The failure of a CCP would expose clearing members and their clients to potentially large losses and a cessation of CCP services could deprive market these participants of basic functions, thereby leading to a possible shutdown of entire markets (as was with the case of the failure of *Caisse de Liquidation*), with knock-on effects even on markets not directly affected and spill-overs for the real economy.

Benefits of the proposal

It is difficult to extrapolate these potential direct and indirect losses from a CCP failure in the abstract. However, it can be assumed – as a minimum – that the net benefits which have been estimated to flow from greater CCP-clearing of OTC derivatives (0.12% of GDP) would be foregone. No firm publicly available estimates exist for the additional losses and costs which could result from contagion and the uncertainty caused by a CCP failure, but the impact of one could be comparable to the costs of a systemic banking crisis. The present value of output losses in atypical banking crisis has been estimated to be 60% of one year's GDP⁵³. The sections and sub-sections above outline some thoughts on losses and impacts in a scenario of CCP distress or failure, against which the loss

⁵¹ "Public quantitative disclosure standards for central counterparties," CPMI-IOSCO, February 2015

⁵² Indeed, respondents largely agreed that most of the FSB "Key Attributes of Effective Resolution Regimes for Financial Institutions" are relevant for CCPs.

⁵³ See Commission Staff Working Document, "Economic Review of the Financial Regulation Agenda" SWD (2014) 158, section 4.3.2 http://ec.europa.eu/internal_market/finances/docs/general/20140515-erfra-working-document_en.pdf

allocation mechanisms of a recovery and resolution regime could be assessed and justified, in particular for such a tail-event. They set out that, in the rare event of such extreme losses, rather than relying on higher capital and collateral requirements in a precautionary but arguably uneconomical way, recovery and resolution tools would be useful means to spread these losses in an equitable way and to safeguard financial stability.

Albeit difficult to quantify, the proposed recovery and resolution framework for CCPs would deliver the following three main goals, similar to those identified in the case of banks.⁵⁴

1. ***Overcoming the suboptimal preparation:*** CCPs are subject to stringent prudential requirements pursuant to EMIR. However, there is no uniform and enforceable standard requiring CCPs and authorities to prepare contingency arrangements and plans for orderly recovery and resolution to avert crises at CCPs from threatening financial stability, including for situations where prudential requirements would prove insufficient to cover the increasing financial risk concentration in CCPs in the event of failure.⁵⁵ As a result of this absence of comprehensive recovery and resolution planning, CCPs and authorities are not fully prepared for a potential CCP crisis, and as such do not have the necessary powers to improve resolvability ex-ante in case of failure, and have few means to effectively secure the continuity of CCPs' critical functions in such a scenario. The result is that CCPs and their authorities are sub-optimally prepared for extreme crises and a legally and operationally deficient framework to allow for effective intervention when necessary.
2. ***Enhancing the currently inadequate means of early intervention:*** Member State authorities have variant powers to intervene in the operation of CCPs before terminal problems crystallise, either before or during the CCP's default management process. As a result, authorities may take very divergent, ad hoc, uncoordinated measures and at different times in their efforts to restore the viability of the CCP or to prevent actions taken by the CCP that could compromise financial stability. This suboptimal intervention framework means that avoidable failures or measures counter to overall financial stability may occur. Through, for example, defining specific tools that could complement the CCP's default waterfall and their criteria for use or providing authorities with powers that require changes to the CCP's management or targeted changes to specific collateral arrangements which may be causing problems, some failures could be averted.
3. ***Introducing an efficient framework for resolution:*** most Member States authorities do not have either the clear jurisdiction or a comprehensive framework to resolve a CCP.⁵⁶ Their absence, as learnt through the pains of the recent banking crisis, can result in some authorities being unable to take the required measures or others

⁵⁴ See Impact Assessment accompanying the Commission proposal for a Bank Recovery and Resolution Directive http://ec.europa.eu/internal_market/bank/docs/crisis-management/2012_eu_framework/impact_assessment_final_en.pdf

⁵⁵ Some Member States (e.g. the UK) have adopted requirements for CCPs to have recovery plans and loss allocation provisions beyond the default resources required under EMIR. Others are in the process of requiring recovery plans as per the Principles for Financial Market Infrastructures and Key Attributes (see section 3.2).

⁵⁶ See Box 1 in section 3.2.

choosing to intervene at different times, leading to disorderly and misaligned national approaches, legal uncertainties and ineffective resolution of CCP, in particular for those with operations in multiple jurisdictions. Differing and uneven measures would also lead to frustrating efforts to stabilise the critical operations of a CCP and critically impair its functioning, jeopardising financial stability and the integrity of the Single Market. The absence of a harmonised framework would also mean that the owners and creditors (including the clearing members and clients) of CCPs contributing unevenly to the costs of resolution, where some might not bear any loss as States intervene to continue critical functions. Other could fare better off than if the CCP gone into insolvency, but most would probably be worse off. Without a structured resolution framework, they would also be subject to a high degree of uncertainty, which in turn could lead to lack of market confidence, contagion and other secondary effects caused by CCP failure. Furthermore, the owners and creditors could be exposed to differential treatment across borders and in uncoordinated attempts by national authorities to minimise losses for some groups of stakeholders; undermining the integrity of the Single Market. Without greater clarity of their potential exposures, clearing members' incentives to monitor the risk they bring to the CCP would be distorted. On the whole, this constitutes a suboptimal framework to tackle the failure of a CCP, resulting in inefficient markets, as well as an unfair and uneven allocation of losses and costs among CCP owners and creditors and taxpayers, and which might even compel authorities to deploy public funds in differing ways to continue critical functions and to fill any funding gaps or provide for compensation.

Taken together, the absence of clear and harmonised provisions for preparation, early intervention and resolution in case of CCP failure would impose significant socio-economic costs. The uncertainty over available means to tackle a CCP crisis generates risks for financial stability, can cause damaging levels of fragmentation for the internal market and result in acute moral hazard if there is no alternative to taxpayer bailout. This uncertainty is also evident in stakeholders' disparate views. While authorities, CCPs, clearing members, and their clients generally agree that the threat of CCP-failure is a major problem, they do not all agree on how best to address it and how costs should be distributed in order to preserve financial stability (see section 6.6 and annex XI part B), as each grouping considers that the other should bear any cost.

4 THE EU'S RIGHT TO ACT AND JUSTIFICATION

EU financial markets are open and integrated. CCPs are able to operate and provide services cross-border. In the process, they link multiple financial actors, counterparties (i.e. clearing members, typically large banks) and clients throughout the Single Market. Due to this advanced and multi-layered cross-border integration of the financial sector, a resolution and recovery framework for CCPs is needed that mirrors the integration of the business. Only EU action can ensure that CCPs and their clearing members are subject to adequate and effective intervention to mitigate or address a crisis situation, as well as adequate safeguards.

The recent crisis demonstrated how ill-equipped Member States, their authorities and central banks were in dealing with preventing and subsequently addressing the crystallisation of risks in banks and, in particular, in a coordinated manner when dealing with a bank with operations in more than one Member State. A number of governments

had to enact emergency legislation to equip their authorities with powers to deal with the disorderly failure of systemic banks or had to take such banks into public ownership to stem contagion. Central banks were also compelled to pump liquidity into the system to prevent further contagion due to the whole system seizing up.

Without a uniformed approach (across the EU and globally, brought about by the FSB key attributes to effective resolution regimes and the EU bank recovery and resolution directive), as well as political drive to rule out any further use of taxpayers monies for public bailouts (as far as possible) (including through the adoption of the BRRD), market fragmentation may have exacerbated.

From this hindsight, it is clear that the current tools available to Member State authorities, if any, are inadequate to deal with CCPs that face significant distress that could compromise the viability of the entity. Where they exist, they are limited to the entity's internal arrangements or are nationally based. The divergent approaches, by which CCPs and authorities mitigate or tackle the problems within the CCP facing financial distress or on the verge of failure, could ultimately lead to the disruption of critical functions for the economy and wider financial instability. EU level action is therefore necessary to adequately equip Member State authorities with tools and powers, that would have enforceability across the Union, to deal with the failure of CCPs located within their jurisdictions, and to ensure effective communication amongst all relevant authorities (e.g. the supervisors of the clearing members and any associated trading venue), whether they be in the same Member State or another. This would, for example, reduce the possible arbitrary effects when a CCP has clearing members in Member States other than the Member State where it is established.

As a CCP fails, each national authority of the constituent parts of a CCPs business (e.g. the clearing member and the trading venue) would likely pursue different objectives. Consequently, Member State authorities and market participants would not be guaranteed that critical problems arising from a crisis situation can or will be solved fairly, effectively and expediently. EU-level action is warranted also for CCP failures that may not have direct cross-border effects, but where harmonisation would mitigate possible level playing-field and competition concerns arising from the prospective and actual national handling of crises arising from a CCP failure. For example, if national regimes were to legislate differing resolution regimes, with a varying degree of potential state intervention with public funds, those which are less costly on the CCP and the clearing members (i.e. those which would unlikely eradicate any degree of state funds being used should the CCP fail) would attract more business to the CCPs in that jurisdiction. Additionally, without EU-level actions, some jurisdictions may not adopt any form of a recovery and resolution regime, and due to the integration of the Single Market, the failure of a CCP in a jurisdiction without such effective tools would likely resonate throughout the Union. However, while a CCP may primarily serve its domestic market, it is unlikely that all of its clearing members and their clients would be located in the same Member State. Therefore, there will always be a cross-border dimension if a CCP were to fail.

Some Member States have already enacted legislative changes specifically to avert potential solvency problems in CCPs or as part of broader resolution regimes for the

financial sector⁵⁷. However, the cross-border effectiveness or their overall adequacy is questionable. The majority of Member States do not have specific or comprehensive resolution regimes for CCPs. The inability of Member States to take control of a failed CCP and resolve it effectively would undermine Member States' mutual trust and the integrity of the Single Market. The uncertainty over how the failure of key market infrastructures could be managed in the absence of an EU-wide framework is cited as one reason for the lag in the pace of integration in Europe's capital markets.⁵⁸ Clarity on the content and process of resolution measures is thus a necessary step to accompany the existing prudential framework applicable to these entities and progress toward a deep, single capital market.

As mentioned above, the experience with bank failures in different Member States underlines how problems at systemic financial institutions can fragment the Single Market into national economic zones. Market perceptions and biases in favour of entities located in jurisdictions with relatively stronger implied backing by the state can cause competitive distortions and arbitrarily influence costs for businesses depending on their geographic location and the perceived appetite of, or necessity for, a Member State to pre-emptively ring-fence assets, liquidity or capital to minimise cross-border exposures. By extension, the same threat provides a basis for EU action to address the failure of a CCP. As in the case of the BRRD (and SRM), Article 114 of the Treaty on the Functioning of the European Union provides an appropriate legal basis for corresponding initiative for CCPs.

5 OBJECTIVES

The general objectives of the initiative for a recovery and resolution framework for CCPs in the EU are:

- Objective 1: **safeguard financial stability** and confidence in CCPs, ensuring the continuity of essential financial services and minimising loss of value and contagion of problems to clearing participants (i.e. clearing members and their clients) and other market participants (such as linked FMIs);
- Objective 2: **minimise losses for society** as a whole and in particular for taxpayers, while calling upon shareholders and clearing participants in CCPs to contribute to the costs of recovery and resolution in a fair way, reducing moral hazard; and
- Objective 3: **strengthen the Single Market** for services provided by CCPs, while maintaining a level playing field (i.e. comparable conditions for all players to compete in EU financial markets) and further harmonising the level of protection of clearing participants.

⁵⁷ E.g. the UK has enacted changes to enable CCP resolution by the Bank of England, see Box 1 in section 3.2 above and:

<http://www.bankofengland.co.uk/financialstability/Documents/fmi/fmisupervision.pdf>

<http://www.bankofengland.co.uk/publications/Documents/fmi/fmiap1403.pdf>

⁵⁸ "Completing the Single Market in capital," Speech by Benoît Cœuré, Member of the Executive Board of the ECB, ICMA Capital Market Lecture Series 2014, Paris, 19 May 2014 http://www.ecb.europa.eu/press/key/date/2014/html/sp140519_1.en.html

In relation to the problems identified in section 3.3 and in order to achieve the three main objectives above, the specific and operational objectives are the following. All five are crucial in overcoming the identified problems and to reach these objectives comprehensively and in a mutually supportive fashion.

Overall

Problems	Problem drivers	Operational objectives	Specific objectives
Disorderly failure of CCP, spreading contagion and risking taxpayer bail outs	Financial risk concentration in CCPs, including from increasing interconnections between all major financial institutions and CCP, which may threaten orderly functioning of financial markets if a CCP were to default	Increase the transparency of how a CCP might fail and the allocation of losses across its stakeholders. Make proportionate ex-ante (legal, operational, structural) changes to reduce the likely cost of failure.	Establish an EU recovery and resolution framework that promotes efficient markets and realign risk and reward, strengthening the Single Market

Preparation and prevention

Problems	Problem drivers	Operational objectives	Specific objectives
Suboptimal level of preparedness of supervisors and CCPs for potential severe crisis situations, including tackling impediments to effective action	CCPs and authorities unprepared for potential crisis situations affecting CCPs	Ensure effective contingency planning by CCPs and authorities and enable authorities to remove ex-ante any legal, operational or structural barriers to recovery or resolution	Increase preparedness of relevant authorities and CCPs for crisis situations

Early intervention

Problems	Problem drivers	Operational objectives	Specific objectives
Sub-optimal early intervention arrangements for supervisors	Supervisors unable to avert a crisis situation from crystallising	Empower all CCP supervisors with a set of common powers and tools to intervene at an early stage to abate the financial distress affecting the CCP and restoring its long term viability	Improve early intervention arrangements for supervisors
	Inconsistent use of early intervention powers, where they exist	Provide all supervisors with a realistic triggers for early intervention powers	
	Uncertainties about the time required to ensure solvency of the CCP and continuity of, at least, its critical functions in emergency situations	Shorten time period to ensure solvency and continuity of CCPs in emergency situations	

Resolution

Problems	Problem drivers	Operational objectives	Specific objectives
Inefficient CCP resolution process and suboptimal outcomes	Uncertainty for owners, creditors and participants of when a CCP would be placed into resolution	Provide authorities with clear and reliable resolution triggers	Ensure resolution of CCPs in a timely and robust manner to limit contagion and eliminate legal uncertainties
	Owners, creditors and participants treated differently in each jurisdictions due to divergent or lack of effective resolution tools & powers	Empower all resolution authorities with a minimum harmonised set of resolution tools and powers to resolve CCPs, eliminating legal uncertainties	
	Lack of authorities responsible for CCP	Ensure that national interest of resolution authorities	Reduce market

	resolution	does not jeopardise resolution of cross border CCP or one that offers its services across borders.	fragmentation and ensure that all stakeholders (owners, clearing members and clients) are treated fairly regardless of their location
	Misalignment between national responsibility of authorities and cross-border nature of the industry		

Financing and cost/loss allocation

Problems	Problem drivers	Operational objectives	Specific objectives
Potential use of public funds in crisis situation to absorb the losses (and recapitalise the failing institution), if available. National systems cannot ensure an optimal and even level of protection of financial stability across Member States	Taxpayers, not owners or creditors of the CCP, pay for the cost of the entities failure	Develop appropriate private financing and cost/loss allocation arrangements for CCP resolution	Develop appropriate cost/loss allocation arrangements for financing CCP resolution from private sources that provide optimal and even level protection for all Member States (in line with other prudential measures and national insolvency rules)
	Divergent national policies concerning financing of crisis situations (where available)	Develop and calibrate optimal cost/loss allocation arrangements for financing CCP resolution across EU	
	Conflicting interests of Member States concerning financing of crisis situations	Align national interest with EU-wide interest in financial and cost/loss allocation arrangements	

6 PRINCIPAL POLICY OPTIONS⁵⁹, COMPARISON AND ANALYSIS OF THE IMPACTS

6.1 Baseline scenario

Maintaining the status quo would mean retaining the scenario described in the problem definition above.

EU prudential requirements applicable to CCPs do not require the preparation of plans for the effective recovery and/or resolution of CCPs. Therefore, despite the global guidance provided by CPMI/IOSCO on recovery of financial market infrastructures and by the FSB on resolution regimes, there is a clear risk that neither CCPs nor authorities would be adequately prepared for their potential failure.⁶⁰ Therefore, notwithstanding that CCP failure has thus far been a rare occurrence,⁶¹ if no EU regime for the recovery and resolution of CCPs is in place, either disparate national regimes or normal insolvency law would apply to CCPs where their viability and financial strength are compromised, through for example the materialisation of risks laid out in annex VIII. As such the continuation of the critical services provided by CCPs would not be ensured in case of extreme events which give rise to large losses for the CCP. Due to the specific features of CCPs, and their interconnectedness with the wider markets, this could lead to severe systemic disruptions and threaten financial stability. In this respect, it is again necessary to take into account that the importance and risk exposure of CCPs will increase in the coming years due to the implementation of the OTC derivatives clearing obligations. Moreover, the distress of a CCP could quickly produce contagion effects via its users to other financial market players and to other CCPs with which it is interlinked.

Furthermore, avoidable failures of CCPs may materialise because the relevant authorities lack comprehensive means to intervene in the operation of CCPs before terminal problems crystallise. As a consequence of the above, if no action at EU level is taken, it cannot be excluded that in order to prevent a CCP failure from compromising financial stability, taxpayers' money would have to be used to support their operations and cover incurred losses.

6.2 Possible options to increase preparedness of supervisors and CCPs for crisis situations

These policy options involve how best to ensure that, beyond the requirements of EMIR, authorities and CCPs prepare sufficient contingency plans for diverse crises. Such options are in line with the G20 endorsed internal standards of the FSB.

Policy option	Description
1. No policy change	The baseline scenario applies
2. Development and maintenance of	CCPs would have to adopt recovery plans setting out the recovery measures they would

⁵⁹ The discussion of some secondary policy options, those considered less crucial and those raised by some stakeholders but which are less expedient in view of the main objectives targeted by this impact assessment is outlined in annex XII.

⁶⁰ See annex III on the international work carried out in this area.

⁶¹ See annex X for examples of CCP (near)-failures

<p>recovery plans by CCPs</p>	<p>take in extreme circumstances that could threaten their viability and financial strength. This could inter alia include adding an additional financing layer to the default waterfall under EMIR to cover losses exceeding those predefined resources.</p> <p>Recovery plans would constitute a regularly updated preparatory tool against diverse and foreseeable threats to the overall viability of the CCP. They would include the following:</p> <ul style="list-style-type: none"> (i) identification of the critical services; (ii) identification of stress scenarios that may prevent the CCP from being able to provide its critical services as a going concern; (iii) identification of the criteria, both quantitative and qualitative, which could trigger the implementation of all or part of the recovery plan; and (iv) identification of the recovery tools and the tools to address structural and operational weaknesses. <p>Authorities would periodically assess the adequacy of the plans. On the basis of the assessment, authorities may require the entity in question to correct deficiencies.</p>
<p>3. Development and maintenance of resolution plans and resolution strategies and operational plans by the resolution authority (separate from but in addition to recovery plans)</p>	<p>Authorities would have to maintain up-to-date resolution plans and that would include the identification of a resolution strategy for the CCP, taking account of the recovery plan and of on-going resolvability assessments by the authorities.</p> <p>Resolution strategies would facilitate the effective resolution of the entity in a way that ensures continuity of its critical functions and winds its remaining services down in an orderly way, following the transfer of its critical functions to another entity. Authorities would test the effectiveness of their resolution plans as part of comprehensive contingency arrangements, and any identified impediments</p>

	that are significant to resolvability should then be removed.
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Option 2: the development of **recovery plans** will form a key component of a CCP's risk management. They will increase the level of due diligence undertaken by CCP as part of their day-to-day operations and will provide the CCPs with a strategy to mitigate financial distress when it arises, either from member-defaults or other (non-member) defaults. Based on the information and procedures set out in the plans, the CCPs would be able to restore their financial health, enabling the continuation notably of their critical services, when their viability as a going concern is threatened. The CCP would test the robustness of the recovery plans against various scenarios (such as uncovered losses arising from defaults among CCP clearing members, liquidity shortfalls and inability to meet margin payments, capital inadequacies, or a combination of the scenarios), revealing any obstacles to recoverability that would be need to be removed. This could, for example, mean the CCP establishing additional private contractual agreements to ensure that recovery measures can be enacted in a timely manner. Through this process the resilience of CCPs would be enhanced, providing further confidence that CCPs would be able to function effectively even under extreme stress. As such, the recovery plans would complement EMIR prudential and other organisational requirements.

Within the recovery plans, CCPs would identify their critical functions and services, list appropriate recovery measures they may undertake and, based on different scenarios of stress (complementing and going further than the stress test currently conducted by the CCP and the relevant authorities), set criteria that would trigger the implementation of such measures. However, no measure should assume recourse to public funds or extraordinary support from central banks.

The adequacy of the recovery plans, including the governance procedures, would need to be periodically assessed (at least on an annual basis or where there has been a material change to the organisational structure of the CCP) by its supervisory authorities, which also need to have the necessary powers to ensure that any deficiencies would be corrected. Where several different authorities are concerned, for instance because a CCP's operations are systemically important to multiple jurisdictions, close cooperation between the relevant authorities would be necessary.

Option 3: Resolution plans (separate from but in addition to recovery plans) would become relevant for a failing CCP, if the recovery measures taken by the CCP were unable to return it to viability within a reasonable timeframe or the proposed recovery measures would have likely jeopardised financial stability. Under these circumstances, the resolution plans would enable resolution authorities to respond in a rapid and decisive manner to the failure or likely failure of a CCP, thereby potentially substantially reducing the broader economic and social cost that would arise in the event of a failure.

Resolution plans would also signal to the market that authorities will take all the available steps to avoid rescuing systemic entities through publicly funded bail-outs, and thus counter any perception that a CCP is too big or too complex or too interdependent to fail. The withdrawal of any implicit guarantee of state support should, in turn, incentivise sound risk management within the CCP and foster stronger market discipline in ensuring that risk management of the CCP is sound.

As part of the resolution planning process, resolution authorities would develop strategies based on the information received from the CCP (and its competent authorities if different) on how – in the most effective but least burdensome way – to preserve and continue the critical functions of the CCP during a resolution, utilising the tools set out in the later sections hereunder. These strategies would then be tested against various scenarios of stress, thereby identifying potential obstacles to resolvability, which could for instance relate to the CCP's structure or operations or loss absorption features. The CCP and the relevant authorities would take steps to reduce the complexity and costliness of resolution but these should take account of, amongst other things, the likely effects on the soundness of operations, the functioning of markets, the provision of liquidity and the incentives on affected parties such as the direct (clearing members) and indirect participants (clients) of a CCP. Increasing the resolvability of a CCP would reduce implicit state support for those CCPs that are too complex to fail, minimising moral hazard and forcing entities to operate more prudently.

Preferred options and analysis of their overall impacts in meeting the objectives

The **preferred options are options 2 and 3**, thereby introducing requirements for CCPs to draw up and maintain recovery plans and for the resolution authorities to draw up and maintain resolution plans that set out the resolution strategy for the CCP, with neither assuming recourse to public funds or extraordinary support from central banks. These would complement other steps in terms of greater supervisory oversight and regulatory requirements (including stress tests), and would help CCPs and authorities in different phases of an evolving crisis situation. Importantly, they should consider all types of failure a CCP might encounter (i.e. a member default or other (non-default) events).

These plans are key requirements under the FSB key attributes of effective resolution regimes for systemic institutions and form part of the Principles for Financial Market Infrastructures ('PFMI')⁶². The introduction of such statutory planning requirements, which are also required for banks as part of the BRRD, would contribute to a level European and global playing field, generating benefits relating to strengthened risk management and resilience of CCPs. More broadly, recovery and resolutions plans would enable all relevant actors to have a better understanding of, amongst other things, the CCP's critical functions, legal status, risk profile (including the scope and complexity of its activities) and interconnectedness. This would enable the CCP and their authorities to react in a quicker, more decisive and more effective manner to mitigate any ensuing distress in the CCP or to prevent financial stability repercussions. Shareholders, clearing members and their clients would also gain greater understanding of, for example, how financial distress in a CCP could affect their ownership rights of the CCP and how any uncovered losses during recovery (and resolution) might be absorbed by their posted assets and positions. In turn this should incentivise greater market discipline, reducing the likelihood that recovery (and resolution) measures would need to be used. In a situation that threatens a CCP's viability and financial strength, the CCP and authorities would be better prepared to take the necessary action to prevent its failure or where necessary ensure its orderly resolution.

The development and continuous maintenance of recovery and resolution plans will place compliance and administrative burden on some of the CCPs. Additional costs could in

⁶² See e.g. paragraph 1.20 of the PFMI, <http://www.bis.org/publ/cpss101a.pdf>

particular arise where CCPs need to train existing or hire additional staff and/or invest in IT or systems to develop recovery plans. The corresponding costs for banks to meet these requirements were estimated to be in the millions for the largest institutions and in the thousands for smaller entities.⁶³ However, as CCPs are organisationally less complex compared to banks the overall upfront costs for CCPs should be less. Again, as the planning requirements would be proportionate to the structure of the CCP – for instance, CCPs with more product lines or complex products would likely require more planning – the cost would be proportionate to the complexity of the business model of the CCP. Furthermore, with the overall positive effect for financial stability derived from the plans, it can be considered that the overall benefits of developing and maintaining recovery and resolution plans for CCPs would outweigh any compliance and administrative costs.

In a similar vein to the powers provided under the BRRD, in cases where CCPs do not take adequate steps themselves to remove the identified obstacles to resolvability, authorities would need statutory powers to improve a CCP's resolvability. This could for example include powers to require CCPs to change their business practices, structure or organisational procedures. It is not possible to estimate the cost of the requirement in the abstract, as the application of these powers would be based on a CCP's individual resolvability assessment and would vary on a case-by-case basis. Any associated costs should, however, be seen against the benefits of authorities being able to resolve CCPs in a way that maintains financial stability and transferring the costs, which otherwise would be borne by taxpayers (through public bail-outs - should the CCP fail), to the private sector. Any possible restructuring of a CCP should have lower overall economic costs in comparison to a large bank, as they have less complex structures. Feedback from CCPs suggests, at a general level, that they do not oppose the introduction of these powers, but they might challenge the case-by-case assessments of any potential shortcomings. In this light, authorities would need to justify that the exercise of any power is in the public interest and that the fundamental rights of the CCP's shareholders and management have not been unduly impinged. For instance, this could mean demonstrating that the measures are proportionate to the systemic importance of the CCP and the likely impact of the CCP failure on financial stability if the obstacles are not removed. CCPs should further have the right to appeal.

Taken together, options 2 and 3 would therefore represent clear benefits in terms of meeting the objectives of maintaining financial stability and minimising losses from the failure of a CCP for society as a whole. A strengthening of the Single Market would be achieved by ensuring a level playing-field as to the applicable requirements and, in case of failure, of how well the cooperative arrangements foreseen in the plan worked in practice. In terms of the specific objectives in section 5, the options are assessed to have strongly positive impacts as per the table below.

⁶³ Based on their share of total assets in each Member State, EBA estimates that the largest individual banks could incur on-going annual costs of up to around EUR 5mn, while the figure for the smallest banks would be in the thousands. See Table 1, p. 35
<https://www.eba.europa.eu/documents/10180/751477/EBA-CP-2014-16++%28CP+on+draft+RTS+on+Content+Res++Plans+and+Assessment+of+Resolvability%29.docx.pdf>

Table 1. Comparison of policy options in section 6.2 against effectiveness and efficiency criteria

<i>Objectives</i> <i>Policy option</i>	<i>EFFECTIVENESS</i>				<i>EFFICIENCY</i> <i>(cost-effectiveness)</i>
	<i>Objective 1</i> <i>Increase preparedness</i>	<i>Objective 2</i> <i>Effective early intervention</i>	<i>Objective 3</i> <i>Timely and robust resolution</i>	<i>Objective 4</i> <i>Financing and cost allocation</i>	
<i>Option 1</i> <i>No policy change</i>	0	0	0	0	0
<i>Option 2</i> <i>Recovery plans</i>	++	++	++	++	++
<i>Option 3</i> <i>Resolution plans</i>	++	++	++	++	++

Magnitude of impact as compared with the baseline scenario (the baseline is indicated as 0): ++ strongly positive; + positive; – – strongly negative; – negative; ≈ marginal/neutral; ? uncertain; n.a. not applicable

6.3 Possible options to improve early intervention arrangements for authorities

In the event that a CCP is experiencing financial stress, the authorities could be provided options for early intervention. Early intervention would occur already in or even before the recovery phase of the CCP. These options, which are not dissimilar to those powers available to authorities under the BRRD for banks, would focus on how best to ensure that, should a CCP encounter financial distress or breach its regulatory requirements, but not yet reach the point of failure, authorities could arrest the situation and restore the viability of the CCP or take other steps to protect financial stability.

Policy option	Description
1. No policy change	The baseline scenario applies
2. Provide supervisors with means for enhanced monitoring and effective early intervention (including giving directions to CCP in the recovery)	In the case of an unexpected decrease of the financial resources of a CCP, indications of shortcomings in its risk management or indications of a potential emerging crisis

<p>phase) to attempt to prevent an irreversible solvency situation or other cause of failure from arising.</p>	<p>situation, supervisors would have enhanced powers, for example, to:</p> <ul style="list-style-type: none"> • obtain greater understanding of the problems at stake at an early stage, enabling the timely adoption of adequate measures aimed at reversing the decline in the financial or operational health of the CCP. • direct changes in management practices or of other activities of the CCP that may be at the origin of problems, including: <ul style="list-style-type: none"> ○ require the activation of recovery measures in accordance with the recovery plan (if not already done so) ○ directing, where necessary, the implementation of recovery measures (including the order to abstain from the implementation of certain measures) to avoid or minimise adverse effects on financial stability that could result from the CCP’s implementation of certain measures. ○ remove and/or replace one or more members of the senior management or management body. ○ request changes in collateral arrangements, margin requirements, the size or concentration of positions held.
<p>3. Provide supervisors with powers to require CCPs to replenish their financial resources if they had used their capital to absorb losses during a recovery</p>	<p>Supervisors would be empowered to require CCPs, that have not already done so, to replenish their financial resources in a timely manner.</p>

Option 2: Should CCPs face financial distress, it would be prudent to equip authorities with common minimum powers, enabling them to fully understand as early as possible the potential threats to financial stability arising from this distress which could manifest in either a member default or other (non-default) scenario and to ensure that appropriate measures are taken to mitigate these threats as far as possible. Such powers would complement and harmonise those already in place through a broad provision under EMIR.

As part of a recovery and resolution regime, supervisors might need to intervene when a CCP faces financial distress to mitigate two types of problems. First, while implementation of recovery plans is the responsibility of the CCP (based on the trigger framework of agreed in the recovery plan), the execution of relevant recovery measures may be ineffective (for example, in terms of timeliness) or the plan itself may be inadequately executed. Secondly, the actual recovery measures, such as the CCP-led loss allocation tools, might under the prevailing economic circumstances, run counter to the overall objective of preserving financial stability, as the interests of CCPs might not necessarily be aligned with the wider interests of financial stability. After all, CCPs are private, profit making entities which would not necessarily be concerned about the impact of its actions on wider financial stability. Thus, given the highly systemic nature of CCPs, and the potential magnitude of losses that might be allocated to their stakeholders, the relevant authorities might, for instance, need to give directions on the implementation of recovery measures, where warranted by the specific circumstances of the case, to avoid or minimise adverse effects on the wider financial system. As such, it is important that supervisors are adequately empowered to address these types of problems.

To this end, CCPs could be obliged by their supervisor to provide detailed information and data allowing authorities to thoroughly analyse the situation. Additionally, authorities could also be empowered to intervene in the management and operations of CCPs considered at risk, where necessary in the public interest. Authorities could, for instance, ask for changes in a CCP's collateral arrangements, margin requirements, the size or concentration of positions held, management practices or other activities of the entity which might be at the origin of problem(s) causing distress to the CCP. Other powers could include the removal and replacement of one or more members of the senior management or management body, the requirement to activate measures within the recovery plan and the power to direct the implementation of recovery measures (including abstaining from the implementation of certain measures) to avoid or minimise adverse effects on financial stability.

Option 3: Where the CCP's financial resources have been used to absorb losses during an event of stress, and are not replenished in a timely manner⁶⁴, the supervisors could be empowered to require a more rapid replenishment so as to ensure that the CCP continues to operate in a safe and sound manner.

Preferred options and analysis of their overall impacts in meeting the objectives

The preferred options are options 2 and 3. Authorities should be provided with powers to stem where possible the propagation of financial distress within a CCP, as well as potential future financial instability. Authorities should be given the opportunity to use these early intervention powers on their own or in combination in order to mitigate any situation as it arises, before a CCP reaches a point at which there is no alternative other than to place it into insolvency, or where necessary into resolution.

The proposed powers, which are in line with CPMI-IOSCO guidance on recovery arrangements for financial market infrastructure, are already available in some Member States (e.g. the UK and Italy) through the implementation of EMIR article 22. By

⁶⁴ As required by the PFMI, CCPs should have rules and procedures for replenishment of financial resources in place, in particular through cash calls or by raising additional equity capital.

empowering all relevant Member State authorities with the same minimum powers, it ensures that all Member State authorities are able to have greater oversight on the CCP and mitigate financial stability risks as the CCP faces financial distress. In practice, this would mean providing to competent authorities a common toolbox for early intervention purposes. Such measures would complement those already provided under existing EU and national law.

It is generally considered to be preferable to attempt to restore the viability of a distressed CCP which is solvent and, on the whole, prudently managed, rather than to restructure it or wind it down, either through insolvency or resolution. CCPs are rarely substitutable and are usually systemically important in their respective markets. Consequently, granting competent authorities powers, amongst others, to issue directions to CCPs in the recovery phase that are not taking the necessary action despite existing arrangements in the recovery plan would support the objectives identified in section 5. Furthermore enabling supervisory intervention at this stage would also be warranted where the implementation of loss allocation tools set out in the recovery plan might have significant adverse effects on the CCP's clearing members and their clients, as well as the wider financial markets and put overall financial stability at risk.

The 2012 Commission consultation did not cover potential early intervention tools at length. Thus stakeholders' views have been obtained through position papers and meetings with industry as well as in the discussions with Member States referred to in section 2.2. On the whole, CCPs and the clients of clearing members do not object to the ability of an authority to intervene in operational aspects of the CCP before resolution. The European Parliament own-initiative report also signals support. Clearing members on the other hand have signalled more reluctance and would prefer for CCP recovery to play out with minimal intervention, except in cases where systemic risks manifestly increase in the process. Member States have signalled that extensive new early intervention powers would not be required, since in some cases (as mentioned above) such powers are already available under national rules, but agree that harmonised minimum powers, e.g., to direct a CCP to take (or abstain from) certain actions in the recovery phase, i.e. to activate or overrule any outstanding contractual arrangements, have merit.

In terms of meeting the objectives, the preferred options would represent ways to improve on the baseline scenario. It is acknowledged that recapitalisation may (option 3), while undoubtedly beneficial, come with a higher overall price tag in terms of efficiency. However, considering that this power is generally already available to supervisors, its harmonisation as part of early intervention powers is not considered as a significant source of additional costs across the board.

It should be noted that in contrast to the BRRD, it has not been proposed that authorities are able to appoint a temporary administrator to manage a CCP back to health as this would unlikely be necessary or purposeful for CCPs. The circumstances in which action by an authority in relation to a CCP would be necessary are likely to be highly specific. Replacing the management of the CCP and changing its business strategy may not be expedient given that a CCP's failure is more time critical than a bank's (i.e. a faster burn), whereas targeted actions by authorities in accordance with (or divergent from) the recovery plan would likely suffice.

Table 2. Comparison of policy options in section 6.3 against effectiveness and efficiency criteria

<i>Objectives</i>	EFFECTIVENESS				EFFICIENCY (cost-effectiveness)
	<i>Objective 1</i>	<i>Objective 2</i>	<i>Objective 3</i>	<i>Objective 4</i>	
<i>Policy option</i>	<i>Increase preparedness</i>	<i>Effective early intervention</i>	<i>Timely and robust resolution</i>	<i>Financing and cost allocation</i>	
<i>Option 1</i> <i>No policy change</i>	0	0	0	0	0
<i>Option 2</i> <i>Enhanced early intervention tools</i>	++	++	+	++	++
<i>Option 3</i> <i>Recapitalisation plans</i>	+	++	+	++	+

Magnitude of impact as compared with the baseline scenario (the baseline is indicated as 0): ++ strongly positive; + positive; -- strongly negative; - negative; ≈ marginal/neutral; ? uncertain; n.a. not applicable

6.4 Possible options to ensure resolution of CCPs in a timely and robust manner (scope of tools and trigger for using them)

If the recovery of a CCP cannot be achieved, options should exist for timely resolution. The potential mechanisms to ensure this is set out in this section and the subsequent possible actions to resolve the CCP are set out in sections 6.5 and 6.6. The options in this section address the questions of how and when authorities should resolve a failing CCP so as to ensure the continuity of the entity’s critical functions and safeguard overall financial stability, while avoiding recourse to public funds by allocating losses to the CCP’s owners and creditors. This section also covers whether Member States can introduce resolution tools in addition to those discussed sections 6.5 and 6.6 through national law (i.e. whether the proposed resolution toolkit is maximum or minimum harmonising).

Policy option	Description
1. No policy change	The baseline scenario applies
2. Provide authorities with the ability to place a CCP into resolution based on the determination of whether certain conditions have been met (soft trigger)	Resolution action would be possible: (i) when a CCP is failing or likely to fail and (ii) alternative measures would not prevent the failure within a reasonable timeframe and other recovery and early intervention options have failed or would be insufficient to restore the CCP's viability or would otherwise compromise overall financial stability; and (iii) when resolution is in the public interest.
3. Provide authorities with clear triggers as to when to enter into resolution (hard trigger)	Resolution action would be automatic when specific quantitative thresholds, e.g. specific capital limits, have been breached.
4. Equip resolution authorities with a set of minimum resolution tools and powers to resolve CCPs	Comprehensive, but non-exhaustive, powers would enable authorities to take decisive action to restructure the operations of the failing CCP, separating and securing the functions which are critical for financial stability from those which are not. (Sections 6.5 and 6.6 set out the options for the tools for this option or the one below.)
5. Equip Member States with a comprehensive, exhaustive tool kit and set out the order in which the tools should be used.	Elimination of legal uncertainties around the use of resolution tools through adopting a more mandatory and prescriptive approach. Maximum clarity over the application or choice of resolution actions. Investors and clients of these entities would know in advance the fate of their assets in the event of a failure and increase their vigilance regarding the safety of their assets and of the CCP's operations.

Option 2: A **soft trigger** would mean that authorities having the discretion to initiate resolution notably if (i) the CCP is failing or likely to fail; and (ii) alternative measures would not prevent the failure within a reasonable timeframe and other recovery and early intervention options have failed or would be insufficient to restore the CCP's viability or would otherwise compromise overall financial stability; and (iii) resolution would be in the public interest.

To limit threats to financial stability arising from the failure or likely failure of a systemic CCP, it is important that, amongst other things, the CCP's critical functions can continue

without disturbance. A soft triggering mechanism would provide authorities with the power to take quick and decisive action to resolve any systemically important CCP while it is still solvent (but close to insolvency) – rather than winding-down the CCP under normal insolvency proceedings in a disorderly manner, thus preventing disturbance to financial stability. Delaying intervention until the CCP has reached insolvency is likely to limit the choice of effective options for resolution, compromise financial stability and increase the amount of losses that would be incurred by stakeholders. As such the resolution framework should provide for timely entry into resolution to ensure its effectiveness.

In line with the approach applicable to banks, a CCP should generally be considered as failing or likely to fail when it is or is likely in the near future to meet one or more of the following conditions: be in breach of the requirements for continuing authorisation, when its assets are or are likely in the near future to be less than its liabilities, when it is or is likely in the near future to be unable to pay its debts as they fall due, or when it requires extraordinary public financial support except in carefully prescribed circumstances. Such conditionality also ensures that authorities do not intervene and seize the operations of the CCP too early.

Any further uncertainty linked to the subjective nature of soft triggers could be mitigated by authorities issuing guidance to market participants about their application in crisis situations⁶⁵. Requiring authorities to examine if there are no other private sector or supervisory interventions that could be undertaken to return the CCP to viability within a reasonable timeframe without otherwise compromising financial stability affirms that resolution is a 'last resort'. Excessive and unjust interference with the fundamental rights of shareholders and creditors is thus avoided.

Option 3: Hard triggers for resolution, such as a breach of a specific requirement, e.g. regarding capital, would bring transparency to the resolution framework by making it more clearly known *ex-ante* to all stakeholders when a possible public intervention might be prompted. This would remove authorities' discretion and leave less room for disputes about the need for resolution. Affected stakeholders would have less margin to block or hinder the resolution process.

On the other hand, hard triggers have a number of disadvantages. For instance, they could provide opportunities for regulatory arbitrage on the part of CCPs if they leave undue room for entities to adjust or arbitrage capital, accounting or other measures around the triggers that will compromise the trigger's validity. CCPs may also fail in a manner that may not meet specific hard conditions, and therefore resolution may not be available as an option to achieve an orderly restructuring or wind down of the institution. Moreover, it is difficult to identify single or compound indicators to detect possible threshold problems or predict future events of financial instability. In the recent crisis, for example, the capital ratios of many banks that failed and needed to be rescued by states (and should therefore very likely have been resolved) were above the regulatory minimum. Furthermore, where a situation of crisis is caused by sudden events, relying on

⁶⁵ E.g. Article 32(6) BRRD mandates EBA to develop guidelines “to promote the convergence of supervisory and resolution practices regarding the interpretation of the different circumstances when an institution shall be considered to be failing or likely to fail.”

hard triggers could result in undue time lags until authorities would be empowered to take action.

Option 4: The introduction of a **minimum set of common resolution tools for CCPs** in all Member States would significantly increase the chances of authorities to achieve a successful and effective resolution and hence maintain financial stability. By introducing the same harmonised powers and specific resolution procedures for CCPs, authorities could use the available tools tailored for CCPs, allowing for an appropriate balance of priorities to be weighed with regard to affected stakeholders.

A minimum toolkit would enable Member States to develop further tools to suit national specificities. However, the application of these additional tools must be in line with the resolution objectives and principles that would be set out as part of this legislative proposal. This flexibility would also ensure that legal barriers for Member States to develop ad hoc tools to react to unforeseen crisis situations, should those tools provided within the final adopted proposal not be sufficient, are reduced.

Option 5: A maximum harmonisation of the tools, which would prohibit Member States for legislating for any additional tools, and a clear path outlining which tools would be used and in what order could entail an even clearer system for CCP resolution. However, such an approach might risk the effectiveness of a resolution as it would limit the ability of authorities to respond in a flexible way to the specific circumstances of an evolving crisis situation.

Furthermore, it appears unlikely that perfectly matched resolution tools and a hierarchy of their use could be developed to address all conceivable crisis scenarios. Such an approach would require some form of standardisation of crisis scenarios and of tools and procedures to be applied according to the scenario, which does not appear realistic. Hence, it is possible that the envisaged resolution measures would not be appropriate to deal with the concrete problems at stake, in particular when it comes to resolving a potentially complex institution in a way that protects financial stability. In an unforeseen systemic crisis scenario, prescriptive resolution procedures risk therefore not being adequate to enable authorities to maintain the critical functions of a CCP. For example, the critical functions might be too technically complex or large to sell to other CCPs in the prevailing conditions without utilising a further tool. Similarly, pre-agreed loss absorption measures might not be sufficient to restore the CCP to viability so as to maintain market and creditor confidence. The resolution authorities might need to apply further ad hoc loss absorption measures to suit the prevailing circumstances to ensure the effective resolution of the CCP.

Preferred options and analysis of their overall impacts in meeting the objectives

The preferred options are options 2 and 4.

The **resolution trigger** needs to strike the right balance between being flexible enough to enable authorities to resolve a CCP in a crisis and provide an appropriate degree of predictability for stakeholders. In line with the approach adopted for banks, the preferred option would be to leave the decision to the assessment of authorities (soft trigger). However, it is essential to ensure that authorities will only use resolution tools if a CCP is close to failure and no other measures can restore its viability and ensure overall

financial stability, and most importantly that it would be in the public interest to place the institution into resolution, rather than normal winding up or insolvency proceedings. Any limitations on the rights of shareholders and creditors, such as CCP's clearing members and their clients, should be in accordance with Article 52 of the Charter of Fundamental Rights. In particular, interference with property rights should not be disproportionate. Affected parties should not incur greater losses than those which they would have incurred if the CCP had been placed into insolvency proceedings. Importantly, despite the conditions for resolution being met, there ought to be nothing to preclude the resolution authority placing non-critical or non-systemic functions of a CCP in resolution into normal insolvency proceedings, if these were deemed to ensure an orderly wind-up of these functions.

This trigger mechanism could be backed by guidance from authorities to market participants about how they would assess the triggering conditions in crisis situations. This should provide stakeholders, who sometimes signal a preference for hard triggers on grounds of greater predictability, with a high degree of certainty as to when an authority may intervene and place a CCP under resolution.

A harmonised but not exhaustive or prescriptive **resolution toolkit** that provides authorities with the necessary discretion to take into account the circumstances of a potential crisis is the preferred option. In any case, conceivable paths of how to potentially resolve an entity in various scenarios would be laid out in non-binding resolution plans. Some Member States, in particular those where clearing members are established but not where the CCPs themselves are established, have sometimes expressed the view that resolution plans should constitute a quasi-“presumptive path” of actions which the authority would take and which would be effectively known in advance. However, they acknowledge that even the best-laid plans may require considerable flexibility at the point of resolution.

In sum, the overall objectives (financial stability, minimise losses, stronger Single Market) as well as the more specific objectives (as outlined in the table below) are considered to be better served with some degree of flexibility in the deployment of the available powers rather than their use being tied to specific numerical thresholds or predefined scenarios. The same conclusions were drawn for banks under the BRRD.

Table 3. Comparison of policy options in section 6.4 against effectiveness and efficiency criteria

<i>Objectives</i> <i>Policy option</i>	<i>EFFECTIVENESS</i>				<i>EFFICIENCY</i> <i>(cost-effectiveness)</i>
	<i>Objective 1</i> <i>Increase preparedness</i>	<i>Objective 2</i> <i>Effective early intervention</i>	<i>Objective 3</i> <i>Timely and robust resolution</i>	<i>Objective 4</i> <i>Financing and cost allocation</i>	
<i>Option 1</i> <i>No policy change</i>	0	0	0	0	0
<i>Option 2</i> <i>Soft trigger</i>	≈	≈	++	+	++
<i>Option 3</i> <i>Hard trigger</i>	≈	≈	+	+	+
<i>Option 4</i> <i>Choice of tools</i>	++	≈	++	++	++
<i>Option 5</i> <i>Mandatory tools</i>	+	≈	+	+	+

Magnitude of impact as compared with the baseline scenario (the baseline is indicated as 0): ++ strongly positive; + positive; -- strongly negative; - negative; ≈ marginal/neutral; ? uncertain; n.a. not applicable

6.5 Possible options to carry out resolution (first set of concrete resolution tools)

This section and section 6.6 below set out the powers and tools that resolution authorities could have to resolve a CCP. Legislation setting out these tools would improve legal certainty for all stakeholders as to how they would likely be impacted during the resolution of a CCP. Authorities should have a variety of ways to carry out resolution, depending on the specific circumstances of the crisis in question. The options below set out are the generic resolution tools that could be made available to authorities to resolve

any financial entity including banks (if justifiable and tailored as necessary), while section 6.6 sets out the options for CCP loss and position allocation.

Alongside the options presented below relating to resolution powers, authorities in cross-border cases will need to cooperate as necessary to achieve the objective of efficient resolution. While the specific mechanisms for this improved cross-border cooperation are not discussed separately as a distinct set of options below, it should be considered implicit in all policy options and notably those which are preferred that the necessary cooperative and cross-border institutional framework would have to be in place to execute the decisions.

In the case of CCPs, whose business is by nature to a large extent cross border oriented, prudential regulation provides for a broad involvement of relevant authorities in authorising CCPs and in other supervisory tasks via colleges.⁶⁶ The question of which authorities should be responsible for CCP resolution would need to be consistent with this framework.

Keeping powers at national level to a maximum extent could make decision-making easier and faster and aligned with fiscal responsibilities. However, without the involvement of authorities in other affected Member States, assessing the impact of resolution measures, e.g. on clearing members and their clients based there, could be more difficult and there could be a risk of bias serving national interests. Enhanced cross-border cooperation between authorities, building on existing arrangements including colleges, while potentially more complex and slower, would allow decisions to be based on a more complete overview of the impacts of resolution measures in the affected Member States.

Policy option	Description
1. No policy change	The baseline scenario applies
2. Write down equity in the CCP or convert to equity any unsecured debt of the entity in a manner that respects the hierarchy of claims in insolvency	This would ensure that owners bear a proportionate amount of the incurred losses associated with the failure of the CCP, including, for example, where this goes beyond their contribution to the default waterfall in a CCP and pursuant to other contractual arrangements. To the extent unsecured debt exists, this would also allow to write down or convert (bail-in) the CCP's unsecured creditors, such as bondholders.
3. Require CCPs to dispose of additional prefunded resources for loss-absorption and recapitalisation, either in a harmonised way or on a case-by-case basis where required by the authorities to address deficiencies	To address situations where losses would erode all the capital and other prefunded loss absorbing resources of CCPs, they could be required to dispose of additional paid-up liabilities issued to external investors or raised from clearing participants, which could be used

⁶⁶ See Article 18 of Regulation (EU) No 648/2012.

relating to resolvability highlighted during the development of resolution plans.	to replenish loss-absorbing resources and recapitalise the entity upon resolution.
4. Transfer of critical functions to a solvent third party or a bridge CCP.	The authority could have the power to force a sale of all or some of the CCP's business lines / portfolio on commercial terms to a solvent third party purchaser (which could be a competing company) or to a bridge CCP wholly owned or controlled by the authority to house critical functions before their onward sale to a third party. This transfer would include the transfer of all associated rights and obligations and service-level agreements.
5. Temporary administration	A public authority would take over the management of the entity with the objective of correcting any deficient practices and ensuring the provision of critical functions until those functions can be either restored to viability, transferred, replaced by another provider or wound up in an orderly manner ⁶⁷ .
6. Moratorium on payments and temporary stay on early termination rights (set-off, close-out netting)	<p>The application of this power would prevent counterparties from enforcing their claims or exercising their contractual rights to terminate contracts in relation to the CCP under resolution in a way which could frustrate efforts by the authority to accurately ascertain its value and secure its critical functions.</p> <p>The scope of the application could be limited to payments due to general creditors. The authority could also order a suspension of the exercise by the CCP's participants and other relevant counterparties of early termination rights and set-off rights triggered in relation to the CCP.</p>

Option 2: The aim of this measure is to ensure alignment of risk and reward. It provides the resolution authority with the power to cancel or write down shares of the CCP and other unsecured liabilities to the extent necessary to absorb losses as these debt instruments (which form part of the CCP's own resources) would have done if the CCP were placed into insolvency. In addition, where compensation is due for the write down

⁶⁷ This is different from a policy option of making CCPs state-owned non-profit entities. See annex XII for why this option is not retained or considered in detail.

of unsecured liabilities, the resolution authority could provide the compensation in the form of new shares in the resolved CCP, thus the original holders of the unsecured liabilities would benefit from any upside of the shareholding as the value of the shares increase over time. Through this explicit alignment of risk and reward, the ex-ante incentives for discipline and stricter risk management by the CCP should be greater in reaction to the increased scrutiny by the shareholders and creditors concerned. With regard to unsecured liabilities, however, as pointed out by several stakeholders including CCPs, the availability of such debt is typically not very high or is non-existent in the case of many CCPs⁶⁸.

Option 3: This, in essence, would be a requirement economically similar to that developed by the FSB notably for the global systemically important banks to maintain adequate loss absorbing capacity,⁶⁹ though it would be suitably adapted to CCPs. This could, in principle, be considered in a harmonised way (following the route of the FSB) or on a case-by-case basis (based on the outcome of the resolvability assessment of the CCP and its ability to absorb losses). On the latter options, the composition and amount of loss absorbency would be seen in the light of other measures the CCP would be taking to increase its resolvability. However, in either case, the resolution authority might require the CCP to have at its disposal an adequate layer of debt or other unsecured instruments or other prefunded resources in order to address deficiencies related to the CCP's resolvability. Should it subsequently be placed into resolution, such a layer of resources may facilitate the resolution of a CCP, enabling authorities to use readily available instruments or resources that have been earmarked for loss absorption and recapitalisation purposes.

In this regard, a CCP could, for instance, be required to issue these instruments notably to replenish its capital to levels required by EMIR, as well as its default waterfall contribution (which is sometimes referred to as 'skin-in-the-game'). Alternatively, the new pre-funded resources (which could include unsecured creditors) could be called on to bear losses in the first instance immediately after the exhaustion of the EMIR default waterfall, reducing the burden on clearing members and their clients on whom losses would otherwise fall. A related but distinct idea is that CCPs and clearing members should set aside cash resources in a recapitalisation fund, sized according to globally carried out stress tests, to absorb losses and recapitalise the CCP, as well as replenish the default waterfall.⁷⁰

Compared to banks, due to the smaller likelihood of failure and thus the smaller likelihood that the instruments would have to bear the envisaged losses, the costs for CCPs to issue them should be mitigated. However, for the same reason, the opportunity costs inherent in requiring a permanent layer of liabilities or cash reserves able to

⁶⁸ Section 6.6 below deals with how other liabilities of CCPs could be written down.

⁶⁹ Principles on Loss-absorbing and Recapitalisation Capacity of G-SIBs in Resolution, Total Loss-absorbing Capacity (TLAC) Term Sheet (November 2015) <http://www.fsb.org/wp-content/uploads/TLAC-Principles-and-Term-Sheet-for-publication-final.pdf>

⁷⁰ JP Morgan: "What is the Resolution Plan for CCPs" (September 2014). Note that other stakeholders including indirect participants have also called for mandatory standardised stress test, see, e.g. ISDA: "Principles for CCP Recovery" (November 2014) and "CCP Default Management, Recovery and Continuity: A Proposed Recovery Framework" (January 2015) and Blackrock: "Central Clearing Counterparties and Too Big to Fail" (April 2014), PIMCO: "Setting Global Standards for Central Clearinghouses" (October 2014).

recapitalise a CCP entity in resolution could nonetheless be considerable. Consequently, CCPs themselves express strong scepticism to the idea.⁷¹ They are also concerned that having CCPs bear a greater portion of the risk of member default would decrease the incentives for adequate risk management of clearing members and clients. It is possible that the higher costs would be passed on to clearing members and clients through indirect charges; according to CCPs this, in particular if an additional loss absorbency layer were to be required in all CCPs, would result in an unlevelled playing field with other jurisdictions, putting EU CCPs internationally at a competitive disadvantage. CCPs have further argued that contagion could spread to other financial actors in a crisis situation if the buyers of the unsecured debt needed to be bailed in. Furthermore, higher costs could constitute a disincentive for clearing. It is also unclear whether there would be a market for new equity/debt instruments issued by CCPs. Last but not least, questions remain as to when the additional resources would best be called upon, i.e. already during the recovery phase or only when the CCP is put into resolution.

On the other hand, some clearing members and clients otherwise potentially exposed to losses have argued in favour of such resources to cushion the impact for them (see e.g. next section and Annex XI part B).

Harmonised requirements in this respect would need to be carefully studied, including at international level in order to ensure a level playing-field⁷².

Option 4: The **transfer** of all or part of the operations of a CCP to a healthy market player could ensure the continuity of critical services. As confirmed by several stakeholders, the transfer of certain functions of a CCP to other service providers may not be carried out easily and quickly due to the specificities of this sector. Finding a private sector purchaser for a CCP may also be more difficult than, for instance, for a bank due to the fewer number of CCPs (e.g. especially CCPs that clear OTC derivatives) and the different nature of CCPs' products, assets and liabilities. Even if a substitute provider is available, operational constraints such as system incompatibility (e.g. IT infrastructures, accounts identification) and legal constraints (e.g. novating contracts with another CCP) may be an obstacle to effecting such a transfer. Moreover, in some cases CCPs are mutually-owned by their members and, for competition reasons it may not be desirable to transfer their ownership to a single private purchaser. However, the development of recovery and resolution plans should overcome most of these obstacles.

Option 4 and 5: Member States have highlighted as part their preliminary views as part of the expert working groups that due to the difficulties notably in transferring CCPs' critical functions promptly to other market players, the establishment of a **bridge CCP** could be a more expedient option. The entity or critical parts thereof could be operated in

⁷¹ See LCH.Clearnet, "CCP Risk Management, Recovery and Resolution" http://secure-area.lchclearnet.com/images/CCP_Risk_Management_Recovery_-_Resolution.pdf and CME Group, "Clearing – Balancing CCP and Member Contributions with Exposures" <http://www.cmegroup.com/education/files/balancing-ccp-and-member-contributions-with-exposures.pdf>

⁷² For now, the FSB annex to the Key Attributes does not specifically propose new prefunded resources for resolution purposes but work in this direction has been signalled for the future: see the letter of the Chairman of the Financial Stability Board to G20 Finance Ministers and Central Bank Governors: "Financial Reforms – Finishing the Post-Crisis Agenda and Moving Forward" (February 2015) <http://www.financialstabilityboard.org/wp-content/uploads/FSB-Chair-letter-to-G20-February-2015.pdf>

a temporary bridge CCP for example at cost-recovery basis, effectively as a utility. This tool would give time for authorities to find a private sector acquirer. A **temporary administration** by the resolution authority taking over the management of the failed CCP (or instructing its existing management) with the objective of correcting any deficient practices and ensuring the provision of its critical functions could ensure that those functions can be either restored to viability, transferred, replaced by another provider or wound up in an orderly manner.

Option 6: A **moratorium** could primarily be considered on payments to a CCP's general creditors. A moratorium should not affect the ability, albeit that it has been placed in resolution, to continue fulfilling its payment and delivery obligations due to its clearing members or to any linked FMI, as otherwise its critical functions would be jeopardised. The exception to this could be a variation margin haircut (see below in section 6.6, option 5). Industry stakeholders and authorities largely agree.

A **stay on the exercise of early termination rights** that may otherwise be triggered upon entry of an institution into resolution or in connection with the use of resolution powers could also be relevant, to prevent users or counterparties from massively closing out or amending contracts, thus hampering the viability and value of the resolved entity in a way counter to the objectives of resolution. However, it should be noted that, provided the substantive obligations under the contract continue to be performed, entry into resolution should not trigger statutory or contractual set-off rights or entitle counterparties to exercise early termination rights.

Preferred options and analysis of their overall impacts in meeting the objectives

Options 2 to 6 presented above are all preferred. However, in the absence of international analysis and possibly a common international understanding of whether and how CCPs should dispose of additional prefunded resources for loss-absorption and recapitalisation, detailed harmonised proposals for forms and amounts of pre-funded resources additional to the EMIR default waterfall under option 3 might be premature at this point in time. Suitably calibrated, however, authorities could require CCPs to dispose of additional prefunded loss-absorbing resources on a case-by-case basis, if proven necessary as part of resolution planning and resolvability assessments (section 6.2, option 3 above). All of the other above options could be retained, thus providing resolution authorities with a vast array of tools that could flexibly be deployed taking into account the circumstances of the specific case and the need to ensure a well-balanced, proportional approach.

Importantly, when applying any of the resolutions tools and exercising any of the resolution powers, authorities should take all appropriate measures to ensure that resolution action is taken in accordance with the principles set out within the proposal, which, where available, should be aligned with international principles. These would include that the continuity of critical services and functions is ensured, shareholders and creditors bear an appropriate share of the losses, the management should in principle be replaced, the overall costs of the resolution of the CCP are minimised, and creditors of the same class are treated in an equitable manner.⁷³ In particular, where affected

⁷³ See Financial Stability Board, Key Attributes of Effective Resolution Regimes for Financial Institutions, October 2014, <http://www.bis.org/cpmi/publ/d121.pdf>

stakeholders within the same creditor class are treated differently in the context of resolution action, such distinctions must be justified in the public interest and should be neither directly nor indirectly discriminatory, e.g. on the grounds of nationality.

This is reflected in the table below. Notably the key objectives of financial stability and minimised overall losses would clearly be served by achieving the specific objectives of timely resolution and private-sector financing and cost allocation, via the availability of multiple options to carry out resolution. However, it is acknowledged that the efficiency of some of the tools such as transferring the critical functions of CCPs and of requiring CCPs to dispose of new loss-absorbing resources at all times may not be optimal.

Table 4. Comparison of policy options in section 6.5 against effectiveness and efficiency criteria

<i>Objectives</i> <i>Policy option</i>	<i>EFFECTIVENESS</i>				<i>EFFICIENCY</i> (<i>cost-effectiveness</i>)
	<i>Objective 1</i> <i>Increase preparedness</i>	<i>Objective 2</i> <i>Effective early intervention</i>	<i>Objective 3</i> <i>Timely and robust resolution</i>	<i>Objective 4</i> <i>Financing and cost allocation</i>	
<i>Option 1</i> <i>No policy change</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>Option 2</i> <i>Write-down of equity and debt</i>	<i>n.a.</i>	<i>n.a.</i>	<i>++</i>	<i>++</i>	<i>+</i>
<i>Option 3</i> <i>Additional loss-absorbency</i>	<i>n.a.</i>	<i>n.a.</i>	<i>++</i>	<i>++</i>	<i>+/~</i>
<i>Option 4</i> <i>Transfer to bridge/3rd party</i>	<i>n.a.</i>	<i>n.a.</i>	<i>++</i>	<i>++</i>	<i>≈</i>
<i>Option 5</i> <i>Temporary</i>	<i>n.a.</i>	<i>n.a.</i>	<i>++</i>	<i>++</i>	<i>+</i>

<i>administration</i>					
Option 6 Moratorium, stay	<i>n.a.</i>	<i>n.a.</i>	+	+	+

Magnitude of impact as compared with the baseline scenario (the baseline is indicated as 0): ++ strongly positive; + positive; -- strongly negative; - negative; ≈ marginal/neutral; ? uncertain; n.a. not applicable

6.6 Possible loss and position allocation tools (second set of concrete tools in addition to section 6.5) for resolving a CCP

The risk concentrated in CCPs and the potential for them to act as a source or conduit of financial contagion requires additional assessment of a second set of different concrete options specific for CCPs to allocate the costs linked to resolution and how to achieve optimal and even levels of treatment and protection of affected stakeholders across Member States.

Policy option	Description
1. No policy change	The baseline scenario applies
2. Cash calls on clearing members as per any existing and outstanding (recovery) obligations of clearing members pursuant to contractual arrangements with the CCP	Enforce existing and outstanding obligations of clearing members to provide additional cash resources to the CCP. The amount that could be called by the authority would be based on the CCP's contractual arrangements with its clearing members. This means that this tool would only be available if it has not been exhausted prior to entry into resolution.
3. Dedicated resolution authority cash calls ('RA cash calls') on clearing members	The resolution authority would have the exclusive right to call on clearing members for further cash to support CCP resolution when the CCP's existing resources and contractually agreed cash calls under the recovery plan are exhausted..
4. Auction or allocation of unmatched contracts, as per any existing and outstanding obligations of members or clients pursuant to contractual arrangements	After a clearing member default, to re-establish the CCP's matched book of obligations, the authority could require the CCP to auction or allocate the non-auctioned part of the defaulter's portfolio to the remaining clearing members.
5. Termination (or "tear-up") of contracts in order to return to a matched book	Terminating contracts of the defaulter that the CCP cannot honour to re-establish the CCP's matched book, reducing the CCP's obligations towards its clearing members. Termination

	could be mandated for either all open positions in the CCP, all open positions in a particular product class, or only the contracts needed to offset the defaulted contracts and/or targeted contract tear-ups to minimise impact on netting sets.
6. Variation margin haircutting	This tool would consist in the pro-rata reduction of the amounts due by the CCP to its clearing members with positive net positions.
7. Initial margin haircutting	This would consist of writing down the initial margin provided by non-defaulting clearing members.
8. Use of resolution funds	Additional (last resort) funding to cover any remaining losses and recapitalisation of the CCP could alternatively be covered from a new resolution fund built up from contributions by CCPs and their members or, since the vast majority of clearing members are banks, by the bank resolution funds set up under the BRRD and SRM.

As described in previous sections and in annex III, the aim of the resolution authority is, amongst other things, to preserve financial stability and minimise any costs associated with the failure of a CCP on the taxpayer. To meet this aim, the resolution authority would need powers to allocate any losses on the private stakeholders of the CCP (the owners, clearing members and their clients) as far as possible, ensuring that risk and reward are aligned, and to re-match the book of the CCP, such that there is a buyer and seller for all CCP contracts and the position of the CCP is flat. The policy options 2 to 4 in section 6.5 contribute to this aim. However, if these tools (should they be adopted as part of the legislative proposal) are insufficient to absorb losses and to return the CCP to a matched book, additional tools tailored for CCPs would be needed.⁷⁴ This includes:

Option 2: Cash calls on clearing members, as per any existing and outstanding (recovery) obligations of these clearing members, would also provide the authorities with additional cash resources to support resolution. However, the availability of this tool depends on whether the CCP has provided for it in the recovery plan⁷⁵ and on whether or not the tool has already been exhausted in the recovery phase. Resolution authorities could be empowered to enforce any existing and outstanding contractual obligations of the clearing members to meet cash calls or make further contributions to a guarantee or default fund where they have not been already applied exhaustively by the CCP prior to it

⁷⁴ See also annex XI for a simplified numerical analysis of some of loss allocation options by the Bank of England.

⁷⁵ This should be in line with the provisions introduced by the Capital Requirement Regulation to limit the exposure of a bank that is a clearing member to the counterparty credit risk associated with exposures to CCPs; see Regulation 575/2013: Recitals (81) to (86); Articles 107, 300-311 and 497; annex II.

being placed in resolution. If available, such arrangements would have the advantage of avoiding potential random allocations of losses implied by some of the other loss allocation options. However, cash calls might potentially be pro-cyclical since this approach involves a (despite contractual agreements not necessarily entirely anticipated) call of funds on all non-defaulting members and could be difficult to exercise in relation to members located in third countries. Furthermore, cash calls rely on clearing members' actively paying the required funds in a timely manner; any time lag in making these payments may be problematic for the CCP's liquidity situation. This issue is discussed in more detail in option 3 below.

A resolution authority will only be able to apply cash calls to the extent that these are part of the CCP's rules and have not been exhausted in the recovery phase⁷⁶. At the same time, in resolution, the principle that no creditor should be worse off as a result of resolution measures than in insolvency applies. This would imply a necessity for full application of the CCP's rules and procedures for loss allocation. This would also be in line with the FSB standards. CCPs, clearing members and clients all appear to favour limited cash calls as part of the CCP's rules to cover some of the losses in the event of default waterfall resources being insufficient, and the power for authorities to enforce outstanding obligations. The clearing members would bear the cost of the cash call. This would likely be absorbed by the rest of the clearing members' business, including possibly by their clients.

Option 3: Dedicated resolution authority cash calls ('RA cash calls') on clearing members. The resolution authority would have the exclusive right to call on clearing members for further cash when the CCP's existing resources (the CCP's 'default waterfall') and contractually agreed cash calls under recovery plans are exhausted. This would provide certainty that specific earmarked resources would be available in resolution and address the concern that available means could be used up entirely in recovery leaving insufficient funds for resolution. The financial resources for resolution implied by this additional cash-call would not be pre-funded by the clearing members. However, the amount of cash to be called in the event of resolution could be sized in proportion to surviving clearing members' stake in the default fund and would thus be known upfront, providing clearing members with ex-ante transparency. Clearing members could obtain compensation for the cash called in the form of ownership equity in the CCP. This feature would incentivise the CCP's owners to have robust risk management systems and recovery plans, lest they would risk losing their ownership to clearing members in resolution.

Depending on the prevailing circumstances at the time of crisis, resolution authorities could also trigger this option in the interest of preserving financial stability before the entire CCP's default management practices, as part of their recovery plans, are exhausted. Notably, where warranted by financial stability considerations, this could imply depriving CCPs of certain options to reduce their liabilities to their participants by writing down the value of gains made by certain participants on their market positions

⁷⁶ If the contractual arrangements between a CCP and its members involve uncapped cash calls, clearing members could be unable to control their risk as they might face unlimited liabilities towards the CCP in case of another member's default. This could create strong disincentives to become a clearing member of a CCP and may partially undermine the G-20 objective central clearing of standardised OTC-derivatives.

(variation margin haircuts) and to fully tear-up positions (and the contracts that underpin them). Instead of the CCP restructuring positions in this way over a potentially undefined time-period, the resolution authority cash call would thus rely on further resources at a comparatively defined moment and allow critical clearing services to remain intact (i.e. avoid large-scale contract tear-up) and avoid losses from falling on position-holders more arbitrarily (i.e. through variation margin gains haircutting).

As indicated above in the discussion of option 2, there is a concern that cash calls may have pro-cyclical effects, as clearing members would be asked to provide liquidity at a moment of market distress; this risk should however at least be mitigated by the fact that due to the cap there is full ex ante transparency of clearing members' potential exposure.

As for the enforcement of outstanding "recovery" cash calls, a potential downside also of the RA cash call is the execution risk, i.e. clearing members may not pay the cash call. This could, in particular, be a complex issue if clearing members are located in other jurisdictions. However, if the resolution cash calls, just like CCP-administered cash calls, were also written into the CCP's rules, this would help mitigate this risk. Clearing members not responding to the cash call in time could be put into default by the CCP and their initial margin could be taken. Moreover, the fact that clearing members receive equity in the CCP in exchange for the cash they provide could further mitigate the execution risk in the case of the RA cash call. The granting of equity could be made dependent on clearing members' fulfilment of contractual obligations towards the CCP, including their obligation to meet recovery cash calls where these are part of the agreed rules. This would constitute an additional safeguard, countering the risk that clearing members might refuse to honour recovery cash calls under the CCP's rules, based on the expectation that they would receive equity in the CCP in exchange for providing cash in resolution, subsequent to a failed recovery.

It should also be noted that, within the EU, some further enforcement provisions exist in the BRRD, which provides that all obligations to financial market infrastructures, CCPs included, should continue to be honoured by banks which are themselves in resolution. Beyond the EU, the Key Attributes commit jurisdictions to set-up cooperation agreements to enforce each other's resolution actions, although these are not yet in place.

Finally, the implementation of the RA cash call, like any other unfunded commitments vis-à-vis CCPs, would be subject to the application of CRR requirements on the related clearing members in terms of:

- Risk-based elements⁷⁷: in the absence of a specific treatment for unfunded contributions or commitments towards qualifying CCPs (i.e. authorized or recognized under EMIR⁷⁸), the treatment of such exposures would fall under the CRR "catch-all" provision contained in Article 107(2) and be similar to exposures to institutions. This would result in a capital charge of minimum 1.6%⁷⁹. However, the latest BCBS requirements do not specify a treatment for these exposures, meaning that CRR could be amended to remove this charge without deviating from BCBS standards⁸⁰.

⁷⁷ Articles 300 to 311 of the CRR contain requirements for institutions' exposures to CCPs.

⁷⁸ See EMIR Article 14 or 25, respectively.

⁷⁹ Assuming a 100% conversion factor (see CRR Article 11 and Annex 1): $8\% \times 20\% \times 100\% = 1.6\%$.

⁸⁰ See "Capital requirements for bank exposures to central counterparties", BCBS, April 2014.

- Non risk-based elements⁸¹: the leverage ratio provisions would impose a capital charge on these unfunded commitments of minimum 0.3%⁸². Note that this requirement is not cumulative with the aforementioned risk-based charge – the higher requirement would apply.
- Liquidity elements⁸³: clearing members would have to hold liquid assets in application of the liquidity coverage ratio. Institutions would have to include those commitments in their potential stressed outflows with a minimum rate of 40% of the size of the commitment.

Option 4: Auctioning or allocating the positions of the defaulting member(s) would allow the contractual relationships underpinning those positions to continue, and ensure a non-defaulting member will be able to honour any obligations pursuant to those contracts as they fall due. The FSB stipulates that resolution authorities should have powers to enforce the rules and procedures of a financial market infrastructure, including any obligations of participants to accept allocations of the positions of a defaulting participant (i.e. forced allocation). This could be done in a variety of ways to avoid excessive impacts on clearing members' and their clients' netting arrangements in relation to their CCP positions. For example, positions could be allocated notably on to those non-defaulting clearing members who have made fewer successful voluntary bids in preceding auctions during the recovery phase. Although stakeholders in general do not contest that outstanding contractual obligations could be distributed amongst the remaining clearing members in resolution (as they would in insolvency), clearing members are critical of the issue of forced allocation of contracts as they claim that meeting the additional payment obligations would place a significant burden on to them.. This tool will, however, only be available to resolution authorities if it has been contractually agreed between the CCP and its clearing members (it could form part of the recovery plans), and up to any agreed caps. Furthermore, where the positions are those of the defaulting member's clients, the clients would continue to honour the underlying contract not the clearing member that has been allocated the position. Nonetheless, acquiring clearing members have to hold greater capital to offset the potential liabilities arising from the contracts they take on. The costs would likely be passed on to the clients but could also be absorbed within the wider business of the clearing member

Options 5-7: Loss allocation among the remaining clearing members and their clients, beyond those agreed in the recovery plans and contractual obligations, via haircuts on their collateral placed with the CCP or via the complete or partial tear-up of their contracts in relation to the CCP would ensure that users of the CCP bear losses and that the CCP returns to a matched book. Should the CCP's failure derive from a member default, the remaining losses arising from such a default, after the exhaustion of the default waterfall and recovery measures, could be spread among the remaining clearing members and their clients,. Such loss allocation could take the form of:

Option 5: Terminating ('tearing-up') contracts that the CCP can no longer honour in relation to members, allowing the CCP to return to a matched book by reducing its

⁸¹ See CRR Articles 429 and 430.

⁸² Considering the 10% floor for conversion factors under the leverage ratio rules: $3\% \times 10\% = 0.3\%$.

⁸³ See CRR Articles 412 and 424 as well as the Commission Delegated Regulation (EU) No 2015/61 of 10 October 2014 to supplement Regulation (EU) 575/2013 of the European Parliament and the Council with regard to the liquidity coverage requirement for credit institutions.

obligations toward members either in a broad or targeted way. A broad tear-up of contracts would be tantamount to closure of the CCP and, unless substitute services were readily available, should be contemplated as a last resort as it could have serious implications for financial stability. To the extent that the tear-up concerns hedge positions of members and clients, those would need to replace the positions as quickly as possible, and be burdened with the corresponding replacement costs or be exposed to unhedged risks. On the other hand, partial tear-up may enable a more targeted reduction of the CCP's obligations. While this tool is available to CCPs as a recovery measure, clearing members are concerned about the impact of tear-ups on their netting sets and have a clear preference for other loss allocation tools such as variation margin haircuts. On the other hand, feedback from major clients active on CCPs indicates that in their view, upon exhaustion of the CCP's default management process, rapid closure and liquidation of all positions by the resolution authority, along with the settlement of resulting net claims between the CCP and clearing members would be preferable to any prolonged period of CCP recovery. They see the replacement cost of renewing their hedges either with another CCP (provided one exists that clears the products concerned) or bilaterally (provided any applicable clearing obligation were suspended) as lower than the uncertainty inherent in re-pricing and in undergoing further potential haircuts of their positions on the original CCP.

Option 6: Applying haircuts to variation margins: The resolution authority could use the variation margins paid by the clearing members with positions 'out-of-the-money' into the CCP by not transferring (all or part of) this sum to the clearing members 'in-the-money'. The advantage of this approach is that liquidity is already available at the CCP. Furthermore it does not have pro-cyclical effects for the members who pay. The disadvantage is that it might, depending on the severity of the haircut, have a pro-cyclical effect for the clearing members who do not receive the payment of variation margins. In addition, the random allocation of losses between the clearing members and their clients who are 'in-the-money' at a given time could necessitate ex-post adjustments. The European Parliament own-initiative report would imply this tool being only available in resolution, not recovery, due to these potential implications for the clients of clearing members⁸⁴. While clearing members favour variation margin haircutting of in-the-money positions as a way to distribute losses widely, clients are concerned about the disproportionate impact on certain end investors such as pension funds who tend to have the greatest net directional positions.

Option 7: Applying haircuts to initial margins of non-defaulting members: under the current EU prudential framework initial margins enjoy a special protection.⁸⁵ Proponents of initial margin haircutting argue that the advantage of such an approach is that it would apply to resources already available at the CCP which could immediately be used. However, if initial margins were used, they would need to be replenished or CCP members' positions would need to be forcefully reduced. If margins were not immediately replenished following a haircut the CCP would be under-protected and, depending on the circumstances (for example, if members are unable to meet the

⁸⁴ Clients are likely to have more directional positions than clearing members. It is argued that variation margin haircutting in recovery could amount to a CCP disproportionately passing on losses due inter alia to its own mispricing errors to participants who have no contractual relationship with the CCP.

⁸⁵ See Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties and trade repositories, Article 45(4).

replenishment margin call), might have to place further members into default. In the case of a forced reduction of positions there would be a risk of fire sales and contagion. CCPs have also highlighted that any difference at national level, for instance in the degree to which initial margin may be protected in a resolution situation, may result in a competitive disadvantage for some CCPs as it could potentially prompt clearing members to move their clearing activities to CCPs in jurisdictions offering more protection of margins.

Option 8: The resolution of a CCP might need to be further financed to cover liabilities of the CCP. Liquidity needs could be met through the use of **resolution funds** built-up ex-ante: this would avoid the pro-cyclical impact in so far as sufficient resources would be available ex-ante. However, to be efficient, they would need to be adequately calibrated and sufficiently large to cover the losses and funding needs that a CCP resolution might entail (e.g. the payment of compensation costs, replenishment of the default fund and the costs of operationalizing a resolution). Like in the case of the additional prefunded resources mooted under **option 3 of section 6.5**⁸⁶, the opportunity cost of such a fund could be considerable, in particular given the remote probability of default. Consequently, none of the stakeholder groups support such a resolution fund. CCPs have noted that the concept of mutualisation of losses is already central to the risk management framework of individual CCPs through their default fund. In their view, an industry-wide fund could make it difficult for each CCP to manage their own default management and recovery regime, creating confusion complexity and higher costs of clearing and decreasing the incentives for CCPs to develop and maintain adequate risk management procedures.

Using the resolution funds set up under BRRD or SRMR would not seem appropriate. These are important bulwarks in the system to ensure successful bank resolution, one of the aims of which is to avoid negative impacts on financial market infrastructures. Calling upon their available funds in case of possible CCP resolution would require an upwards revision of the total target level of the BRRD resolution financing arrangements or the Single Resolution Fund (SRF). It could also entail a careful readjustment of banks' contributions to the funds, inter alia depending on them being clearing members in one or more CCPs and thereby potentially benefitting from the funds' mutualised support in case of loss allocation within the context of a CCP resolution.

Preferred options and analysis of their overall impacts in meeting the objectives

The preferred options are 2, 3, 4, 5 and 6. One of the main objectives of resolution is to ensure that the shareholders and unsecured creditors of a failing institution bear their share of the losses arising from the failing institution, thereby minimising any costs being borne by the taxpayer. This reduces moral hazard and increases market efficiency. It is equally important that resolution actions do not unintentionally propagate financial instability or cause disproportionate disturbance to property rights and claims of the stakeholders of the failing institution or create undue opportunity costs.

Balancing the aim of overall financial stability (continuity of critical functions, value-preservation), with effectiveness (private sector loss allocation, including so as to

⁸⁶ With the difference that these funds would be industry-wide, akin to resolution funds for banks, available for all CCPs, rather than internal resources within and for individual CCPs.

minimise overall socio-economic losses) and cost efficiency suggests that a broad range of tools and options should be available such that authorities are able to safeguard financial stability regardless of the prevailing economic circumstances. At the same time, the optimum choice of tools to address uncovered losses in the CCP exceeding available EMIR default management resources should not impose disproportionate costs on any one stakeholder group (i.e. owners, unsecured creditors, clearing members or the clients of clearing members). Losses should be distributed in a fair manner that respects stakeholders' status in the hierarchy of creditors of the CCP. This might warrant, during resolution, an appropriate mix of tools.

Against this backdrop resolution authorities should first have powers to enforce any outstanding contractual obligations towards the CCP, while ensuring that financial stability is maintained. This would include enforcing the agreed recovery measures that form part of the CCP's internal rules, such as calling upon any unused and available resources in the default waterfall or making outstanding cash calls, ensuring that the going concern capital fully absorbs losses, and imposing losses on clearing members and participants pursuant to any un-executed parts of the CCP's recovery rulebook, including forced allocation of contracts and outstanding variation margin haircuts (**options 2, 4, and 6**). Second, resolution authorities should have the exclusive right to call on clearing members for further cash when the CCP's existing resources (the CCP's 'default waterfall') and contractually agreed cash calls under recovery plans are exhausted (**option 3**). Third, in accordance with the creditor hierarchy, (**as set out under option 2 and 3 of section 6.5**), resolution authorities should be empowered to write down remaining capital (including cancelling or severely diluting any shares) and any further pre-funded resources that they have been required to hold based on their case-by-case resolvability assessment.

Failure to equip resolution authorities with appropriate powers would mean that their statutory powers in resolution would not exceed those under private contractual arrangements, making them dependent on the latter. In the case CCP-recovery failed, it would be evident that they would be insufficient during resolution. Setting out clear statutory powers would provide all stakeholders with greater certainty on how losses could potentially be allocated on to them should a CCP be placed into resolution. Harmonised statutory powers would also contribute to a level playing-field with regard to the treatment of all EU CCPs, regardless of their location with the Union, and their stakeholders, enhancing Single Market integration. Finally, it would ensure consistency with the no-creditor-worse-off principle, whereby losses would continue to be allocated in accordance with the insolvency creditor hierarchy.

For this reason, beyond recourse to all contractually available loss allocation resources and to the right to call on clearing members for further cash, resolution authorities should also have the power to further haircut variation margin, as well as non-bankruptcy remote initial margin in line with the creditor hierarchy (**options 6 and part of 7**). If the resolution authority is not able to return the CCP to a matched book through continued auctions or forced allocation of positions as prescribed under the internal rules of the CCP, the authority should be given powers to terminate ("tear-up") contracts. The tear up power could for instance be applied to the contracts of the clearing member(s) in default or to the product line/specific clearing service that is facing financial distress or to the CCP as a whole. The latter option, as discussed previously would be a nuclear option as this would effectively completely close the CCP to down. Therefore, it is not clear

whether anything but complete wind-up of the clearing service would make sense in such cases. However, a complete tear-up power could for example be needed if the critical functions of the CCP were already transferred to a third party (**using the tools under option 4 of section 6.5**) and the remaining business needed to be wound down. The use of these powers would reduce the overall balance sheet of a CCP and return its book to an overall position, returning confidence to the CCP. It is important that resolution authorities exercise their powers in accordance to the principle of proportionality such that losses are only placed on stakeholders to the extent necessary to absorb losses and return market confidence in the entity. Appropriate safeguards might be necessary to, for example, protect netting sets and prevent cross default defaults from occurring, thus minimising contagion. This could potentially be achieved by ensuring that the entry for the CCP into resolution and any subsequent resolution action is not seen as a contractual default event.

While the remaining tools discussed above could, from the point of view of effectiveness, improve on the status quo in terms of achieving greater financial stability, their use could also have harmful consequences. In this context, haircutting bankruptcy-remote initial margin of non-defaulting members ought not to be possible in resolution (**part of option 7**)⁸⁷. Not only would it contravene the 'no creditor worse off' principle, but it would also create significant market uncertainty. The establishment of a pre-financed fund to facilitate a CCP resolution (**option 8**) is also not a preferred option due to the opportunity costs arising, in particular, from the remote probability of a CCP default. It should be recalled that the probability of CCP failure, in particular due to member-default, should be further mitigated through an effective application of the BRRD, including the resolution funds set up therein. Furthermore, from a competitiveness perspective, the combination of the magnitude of a pre-financed resolution fund that would be required and the low probability of default, may lead to CCPs relocating to other jurisdictions which would not establish such a financing requirement.

Through ensuring that private stakeholders bear the cost of CCP failures rather than the taxpayer, loss allocation tools have the added advantage of incentivising these stakeholders, in particular those with direct relationships (namely the shareholders and clearing members), to exert greater discipline on the operations of the CCP. In the case of dedicated resolution authority cash calls, incentives to support prudent risk management could also be further strengthened for the owners of CCPs as clearing members could be compensated with equity in the CCP in exchange for the cash they provide to the CCP, thereby diluting or wiping out the original shareholders. Those with indirect relationships to the CCP would be more incentivised to shop around regarding which clearing member to engage with and adjust their positions in relation to that clearing member. Clients suggest, however, their ability to do so might be limited in some market segments due to an absence of alternative providers (e.g. clearing of some OTC derivatives) and that their established relationships with clearing banks largely determine which CCP is used for each contract. Still, it suggests that they should not be excluded from absorbing losses in all circumstances either,⁸⁸ unless the clearing bank can offer some contractual safeguards. Regardless, the loss allocation tools ought to incentivise all private stakeholder of the CCP to address any financial distress faced by the CCP, as although resolution would be

⁸⁷ By contrast, haircutting initial margin which is not bankruptcy remote under national law could remain an option.

⁸⁸ See annex XI for a simplified analysis of this breakdown of impacts.

more value preserving than insolvency proceedings, a private sector solution would be even better.

The above options would expose clearing members and their clients to different degrees of liability in case of a CCP failure, incentivising them to enhanced governance CCP arrangements. For instance, cash calls (option 2) and forced allocation (option 4) in accordance with the agreed contractual arrangements under the CCP's internal rules would be borne by the non-defaulting clearing members of the CCP. The clearing members would absorb the costs, insofar as they are able to and might pass them on to, amongst others, their clients. Dedicated resolution authority cash calls (option 3) would also be borne by the non-defaulting clearing members; however, clearing members could be compensated by equity in the CCP in exchange for the resources they provide. The haircutting of variation margin (option 6) and non-bankruptcy remote initial margin (option 7), on the other hand, would affect the ultimate counterparty to the contract – either a clearing member, which is for instance hedging a business risk, or a client. Under the tear up measure (option 5), again this would affect the ultimate counterparty. However, as the principle initial margin would be returned to that ultimate counterparty (minus any due payment) the situation is slightly different. The strain on that counterparty would arise should it not be able to enter into a new financial contract on the same terms (or if haircuts of variation margin or initial margin had taken place prior to the termination of the contract). Depending on the prevailing market conditions, in particular if the CCP failure was caused by members defaulting, it would be unlikely that the counterparty would find a contract with similar terms and would therefore likely enter into one that is more costly.

Stakeholder views

Depending on the tools used, stakeholders would be affected in different ways and consequently, having regard to financial stability considerations, resolution authorities may have preferences for certain options depending on the prevailing economic situation. An extensive toolkit of options that will allocate losses amongst CCPs' owners, clearing members and their clients, available both to CCPs at the recovery stage and to authorities in resolution would allow to take the specific circumstances of a given crisis situation duly into account.

It appears that each stakeholder group, while agreeing that the cost of a CCP failure should not fall on to the taxpayer, prefers tools which place the burden on another group of stakeholders. Based on the feedback received,⁸⁹ CCPs tend to favour limited cash calls on clearing members, the ability to haircut variation margin gains and to tear-up loss-making uncovered positions, both temporarily in order to re-price them as well as permanently, in effect closing down a particular clearing service. A CCP forcefully allocating losses from such positions onto clearing members would also secure its continuity by way of loss distribution onto others. Conversely, requiring CCPs to increase their own (shareholders') liability in either recovery or resolution would alleviate the burden on clearing members (apart from where clearing members fully own the CCP) and their clients. CCPs argue against this, noting that their capital requirements under EMIR already adequately address all foreseeable scenarios. They say that requiring them to issue more loss-absorbing equity or debt against very unlikely tail-risk events

⁸⁹ Mostly in bilateral meetings with Commission staff

would be uneconomical. Clearing members and clients, on the other hand, generally tend to favour such greater “skin-in-the-game” by the CCP, as a way to deflect losses away from them.⁹⁰

However, among the different loss allocation options, the interests of clearing members and clients diverge in important ways.⁹¹ For instance, while clearing members favour variation margin haircutting of in-the-money positions down to the beneficial owner (either the clearing member or the client) level as the preferred option in recovery as a way to distribute losses widely and mimic how claims would be haircut in insolvency,⁹² clients generally prefer this option only in resolution. They say that doing so in recovery would likely lead to disproportionate impacts on certain end investors such as pension funds who tend to have the greatest net directional positions. Moreover, this could be detrimental to the objective of continuity in that imposing losses to clients could encourage them to flee from the CCP imposing such costs, and further weaken the position of that CCP. These end-clients do not have a contractual relationship with CCPs and their positions, which are mostly hedges for investments unrelated to the performance of the CCP, and they as such consider that they should not be called upon to bear losses to keep it afloat.⁹³ Clients also argue that only authorities, not CCPs, should be empowered to apply loss absorption measures that touch margins, in line with what would happen in insolvency. However, due to the systemic disruption and value destruction that could arise from a CCP failure (which appropriate resolution action should minimise and address), there is a strong preference amongst Member States, CCPs and clearing members that the critical functions of a CCP should be maintained and that every effort should be made to recover a CCP that is facing financial distress.

Clearing members and their clients are also at odds on the merit of contract tear-ups. The feedback from major clients active on CCPs indicates that, upon exhaustion of the CCP’s default management process, rapid closure and liquidation of all positions by the resolution authority, along with the settlement of resulting net claims between the CCP and clearing participants would be preferable to any prolonged period of CCP recovery. They see the replacement cost of renewing their hedges either with another CCP (provided one exists that clears the products concerned) or bilaterally (provided any applicable clearing obligation were suspended) as lower than the uncertainty inherent in re-pricing and in undergoing further potential haircuts of their positions on the original CCP.

⁹⁰ See e.g. replies of the Investment Management Association (IMA), Alternative Investment Management Association (AIMA) to the 2013 FSB consultation on the application of the Key Attributes of Effective Resolution Regimes to non-bank financial institutions http://www.financialstabilityboard.org/publications/c_131025_1.htm

⁹¹ These effects vary depending on the ownership structures of CCPs. When CCPs are owned by their clearing members, these interests may be better aligned (beyond agency issues). However, the dominant ownership structures for EU CCPs no longer tend to be this ‘users owned-users governed model.

⁹² See the position paper of the International Swaps and Derivatives Association (ISDA) on “CCP loss allocation at the end of the waterfall”, August 2013 http://www2.isda.org/attachment/NTc5Nw==/CCP_loss_allocation_waterfall_0807.pdf

⁹³ See e.g. IMA and AIMA replies to the FSB consultation. In other words, they are not investors in CCPs akin to liability-holders which could exert discipline on it and which, by this token, should be bailed-in in case of failure. However, clients do signal that compensation in the shape of equal claims against the defaulted clearing member’s estate or the recovered CCP’s future profits could potentially make variation margin haircutting in recovery palatable.

Clearing members on the other hand express some scepticism to positions being restructured in this way by CCPs in recovery on the grounds that this could create large market disruptions and would interfere with the prudential and accounting treatment of their derivative and other exposures with the CCP. They say that clarity is important on ways to avoid increased capital costs of breaking legally enforceable netting sets in any non-voluntary way, which they say would otherwise have to be passed on to their clients. Consequently, they argue that tear-ups should only occur if the default management process, including the voluntary auctioning of positions and variation margin haircutting, fails to cover the losses and closure of the product line becomes inevitable. Clearing members think authorities should not interfere with the process unless it is clearly likely to aggravate contagion and overall systemic risk.⁹⁴

Therefore, the views of clearing members and clients differ on a point of fundamental importance. Unlike clients who do not consider the continuity of positions on the ailing CCP to be paramount and who consider that losses akin to those that would have applied in case of CCP insolvency can only be applied in resolution at the behest of authorities, clearing members regard the continuity of the CCP and of positions on it as best for overall value-preservation and prefer the insolvency counterfactual to apply already in recovery.

Two tools which CCPs, clearing members and clients all favour are limited cash calls to cover some losses in the event of default waterfall resources being insufficient, and the ability for authorities to impose losses by way of any outstanding contractual obligations from the CCP's default management process and recovery rulebook which haven't been applied already upon the CCP's entry into resolution. Finally, the tools which have received little support from industry stakeholders but have led to mixed views amongst Member States are: (i) haircutting of initial margins, due to its availability to cover the losses only of the defaulted participant, its bankruptcy-remote status in most jurisdictions and the fact that, unless replenished immediately, initial margin haircutting would leave the CCP unprotected, and (ii) industry-funded resolution funds for loss absorption and recapitalisation upon exhaustion of CCP default waterfall resources, due largely to the associated opportunity costs.

Loss allocation tools may entail that costs are borne more by some and less by others. As shown in the table below, while the objectives of financial stability and minimising overall losses through timely resolution and private sector financing would be fully met in terms of avoiding losses for taxpayers, the private stakeholders who are called on instead would be impacted in different ways and unintended consequences may result – hence the uniform assessment of “positive” under “efficiency” for the preferred options.⁹⁵

⁹⁴ See the position paper of the International Swaps and Derivatives Association (ISDA) on “CCP loss allocation at the end of the waterfall”, August 2013
http://www2.isda.org/attachment/NTc5Nw==/CCP_loss_allocation_waterfall_0807.pdf

⁹⁵ See annex XI for a more detailed breakdown of the potential impacts.

Table 5. Comparison of policy options in section 6.6 against effectiveness and efficiency criteria

<i>Objectives</i>	<i>EFFECTIVENESS</i>				<i>EFFICIENCY</i> <i>(cost-effectiveness)</i>
	<i>Objective 1</i>	<i>Objective 2</i>	<i>Objective 3</i>	<i>Objective 4</i>	
<i>Policy option</i>	<i>Increase preparedness</i>	<i>Effective early intervention</i>	<i>Timely and robust resolution</i>	<i>Financing and cost allocation</i>	
<i>Option 1</i> <i>No policy change</i>	0	0	0	0	0
<i>Option 2</i> <i>Enforcement of cash calls, as per existing and outstanding (recovery) obligations</i>	n.a.	n.a.	++	++	+
<i>Option 3</i> <i>Dedicated resolution authority cash calls</i>	+	n.a.	++	++	+
<i>Option 4</i> <i>Auction/allocation</i>	n.a.	n.a.	++	++	+
<i>Option 5</i> <i>Tear-up</i>	n.a.	n.a.	++	++	+
<i>Option 6</i> <i>Variation margin haircutting</i>	n.a.	n.a.	++	++	+
<i>Option 7</i> <i>Initial margin haircutting</i>	n.a.	n.a.	++	++	?

Option8					
Resolution fund	<i>n.a.</i>	<i>n.a.</i>	++	++	-

Magnitude of impact as compared with the baseline scenario (the baseline is indicated as 0): ++ strongly positive; + positive; -- strongly negative; - negative; ≈ marginal/neutral; ? uncertain; n.a. not applicable

7 OVERALL IMPACTS OF THE PACKAGE

Like for banks, a CCP recovery and resolution framework offers a third option between massive public bailout of a failing CCP and disorderly insolvency. The costs arising from the failure of a CCP will not disappear but would be reallocated from the state (on an ad hoc basis) onto private stakeholders (on a more predictable basis). The framework would improve legal and economic certainty overall. While there may be economic costs associated with the framework, the recent banking crisis provides extensive empirical evidence that the existing alternatives of bailout (e.g. Ireland) and insolvency (e.g. Lehman) are worse in the long-run. And unlike for banks, the preferred options foreseen for CCPs do not include those which carry major upfront costs, e.g. new prefunded buffers of loss-absorbing resources or resolution funds. Also, State Aid implications might be considered depending on the resolution options retained and how resolution powers would be exercised.

7.1 Small and medium sized institutions (SMEs)

The proposals aim at maintaining financial stability in the EU as a whole. Like other businesses, SMEs will benefit from the increased stability of CCPs and the continuity of their key critical functions should a financial crisis occur in the future which would lead to their distress or failure. The probability of such a crisis occurring should be reduced through the planning, prevention and early intervention measures that would form part of the proposals. As a result, the potential for negative knock-on effects of a crisis affecting the financial sector – e.g. reduced readiness and/or capacity of the banking sector to provide financing to the real economy, recessions etc. – that tend to heavily impact SMEs and their ability to secure funding would also be reduced. It should be recalled that, in light of the relatively high degree of direct dependence of European SMEs on banks for their funding, such negative effects for SMEs would be mitigated first and foremost by the effective resolution of banks, including the continuity of their critical lending functions, pursuant to the BRRD. However, the present proposal is also critical in this respect, since it will help to limit contagion and maintain overall financial stability in times of market stress and may thus prevent the occurrence of bank failures (and the need to resolve them) which could be the direct or indirect result of the failure of CCPs.

However, the costs associated with increasing the level of resilience to and preparation for the failure of a CCP (including the removal of any perceived implicit guarantee) may be passed on to the ultimate clients of CCPs who might be SMEs, and the wider economy. Still, the benefits associated with better contingency planning by institutions whose failure could cause systemic problems, the reduction of contagion risks as well as the removal of any perceived implicit guarantee, facilitating an efficient and competitive

market, improving the economic environment and the fiscal position of Member States, means that any associated cost in net terms is unlikely to be significant.

7.2 Administrative costs

Some elements of this proposal could be seen as implying administrative burden such as the obligations for CCPs and supervisory/resolution authorities to develop recovery and resolution plans. However, recovery and resolution plans are key requirements under the FSB key attributes of effective resolution regimes for systemic institutions as well as under the Principles for Financial Market Infrastructures ('PFMI').⁹⁶ CCPs and authorities are developing such plans to meet international standards has already been undertaken or is on-going.

Under enhanced supervision, potentially increased reporting obligations of CCPs bearing higher risk could also increase administrative burden. However, these obligations would be proportionate to the risks to financial stability posed by the different CCPs. They should also dovetail with on-going and complementary processes such as CCPs' own internal risk management reviews and supervisors' on-going and periodic monitoring exercises.

Increased early intervention and resolution powers granted to authorities will not affect administrative costs per se. In many cases early intervention powers already exist under national legislation; an EU framework would provide for common minimum powers and could contribute to a more level playing field. If authorities require CCPs to provide additional or more frequent reporting on their activities in an emergency situation, authorities need to examine whether the cost of reporting is in balance with the gravity of the situation and its potential negative spill over effects. Likewise, any changes requested by authorities into business practices should be proportionate and fully reasoned. During 'business as usual' times CCPs would not need to provide additional information compared to current obligations and those mentioned in the preparation phase (e.g. recovery and resolution plans, where applicable).

7.3 EU budget

The above policy options do not have any implications for the budget of the European Union. Prevention, early intervention and resolution would be primarily managed by national authorities. Possible additional tasks might arise for the European Supervisory Authorities (ESAs) in terms of coordination and binding mediation between national authorities as well as drafting guidelines or technical implementing rules (in line with the scope of tasks entrusted to the European Banking Authority under the BRRD). However, in view of the far fewer number of CCPs, these tasks should be manageable with ESAs' currently foreseen resources, subject to their final degree of involvement in the framework.

7.4 Fundamental rights

The preferred options have been scrutinised in order to verify if the corresponding provisions are fully compatible with the fundamental rights of the Charter of

⁹⁶ See e.g. paragraph 1.20 of the PFMI, <http://www.bis.org/publ/cpss101a.pdf>

Fundamental Rights and notably the right to property (Article 17) and the right to an effective remedy and to a fair trial (Article 47). In accordance with Article 52 of the Charter, limitations on these rights and freedoms are allowed. However, any limitation on the exercise of these rights and freedoms must be provided for by the law and respect the essence of these rights and freedoms. Subject to the principle of proportionality, limitations may be made only if they are necessary and genuinely meet the objectives of general interest recognised by the Union or the need to protect the rights and freedoms of others.

Some CCP resolution measures may interfere with shareholder rights. The power of a resolution authority to transfer the shares or all or part of the assets of a CCP to another entity interferes with the property rights of shareholders as these transfers would be affected without the consent of the shareholders. In addition, the authorities would have the power to decide which liabilities to transfer out of a failing institution or to restructure based upon the objectives of ensuring the continuity of critical services and avoiding adverse effect on financial stability. These powers also involve possible disruptions to the rights of creditors.

In respect of Article 1 of the First Additional Protocol to the European Convention for the Protection of Human Rights and Fundamental Freedoms, the European Court of Human Rights has held that a share in a company's basic capital is a property of the shareholder. A share is capable of being economically valued as any other possession. Therefore, Article 1 of the First Additional Protocol protects CCP owners' property interests in their shares. The Court therefore protects shareholdings against deprivation and certain forms of governmental control and interference. However, this right is not granted without any limitation. The State may (only) deprive shareholders of their shares subject to conditions provided by law and to general principles of international law, when there is a public or general interest justifying the measures and against the payment of 'fair' compensation.

The objective pursued by the measures in question is the preservation of financial stability in the European Union. A pre-requirement for the use of these powers is in fact that the CCP cannot be wound up under normal insolvency proceedings because this would destabilize the financial system. If the authorities had to seek the shareholders' and creditors' consent before intervening, they would not be able to act with the required speed and certainty and thus preserve public confidence in the financial system. The measures furthermore reduce the need to use public funds to rescue these institutions and avoid their creditors remaining immune from suffering losses in insolvency.

The Court of Justice has recognised in a number of judgements that the protection of the banking and financial system is a general interest pursued by EU law and national laws governing banks and financial institutions and that the protection of this interest may constitute a justification for restrictions to the fundamental freedoms of the Treaty under national law, provided that the restrictions are proportionate and suitable to reach the objectives they pursue (see case C 110/84, paragraph 27 and case C 101/94, paragraphs 10 and 26). In another judgement, the Court has considered that maintaining the good reputation of the national financial sector may constitute an imperative reason of public interest capable of justifying restrictions on the freedom to provide financial services (Case C-384/93).

Accordingly, the measures in question are in conformity with an objective of general interest pursued by the European Union. A further safeguard –similar to that under the Bank Recovery and Resolution Directive – will be that shareholders and creditors do not receive less favourable treatment in resolution than they would have received if the entire institution had instead entered insolvency under the applicable national law. Resolution should on the whole be a value-preserving mechanism in comparison to insolvency.

As the resolution of CCPs would also involve administrative and judicial procedures, the provisions concerning related rights such as due process and having an effective remedy against the measures are also relevant (Article 47 of the Charter and Article 1 of the First Additional Protocol, and Articles 6 and 13 of the European Convention).

The case law of the European Court of Human Rights indicates that it will give Contracting States wider scope for restricting shareholders' right to due process if they can show that there is an emergency situation and that the crisis requires expedited procedures. The restriction must not be disproportionate to the task the authorities have set themselves. Articles 6 and 13 of the European Convention, furthermore, set out the shareholder's right to due process and to an "effective remedy". An effective remedy implies that national laws must afford to the individual or entity concerned procedural guarantees allowing a reasonable opportunity for presenting its case and effectively challenging the measures interfering with the rights guaranteed by that provision. Shareholders are thus entitled to have their grievance against the restructuring measures heard, even if the measures alleged to have violated the European Convention are taken by a competent authority and are justified in the public interest.

7.5 Social impacts

The preferred options are expected to have a positive social impact, consisting of the following aspects:

- *improved level of financial stability* – enhanced supervision, more effective early intervention and CCP resolution measures help ensure economic development and jobs will be less at risk;
- *increased protection for individuals and SMEs customers* – lower probability of CCP failure, specialised CCP resolution process helps maintain continuity of financial services in both wholesale and retail markets;
- *less stress for social welfare systems and taxpayers* – effective recovery and resolution of CCPs will put less burden on the welfare systems and taxpayers (no bail-out policy), and it will avoid placing a huge burden on current and future taxpayers like in the latest crisis.

With regards to jobs in CCPs, restructurings required by resolution authorities if the institutions prove to be too complex to resolve may affect employees. In certain cases, such restructurings may decrease the necessary labour force, but in others they may increase it. For example if a CCP needs to disentangle certain operations, certain functions (e.g. IT, marketing and administration) may need to be reinforced. Also, any redundancies could equally be expected in case of insolvency of the failed CCP.

Moreover, this would not compare to the vast anticipated loss of employment as a result of a failure of a CCP or economic recession prompted by a resulting financial crisis.

7.6 Third country impacts

The EU has taken liberalisation commitments in the domain of financial services in the General Agreement on Trade in Services (GATS) and bilateral trade agreements. When dealing with liberalisation of financial services one has to draw the line between measures that primarily have the effect of imposing barriers to trade (and therefore should be eliminated) and measures necessary for public policy objectives – such as ensuring the stability of financial system. To cater for the latter, the GATS (and the bilateral trade agreements) contain(s) a “prudential carve-out” for domestic regulation. This provision ensures that market liberalisation would not jeopardise prudential regulation and supervision, which ensure the protection of financial stability⁹⁷. Measures aimed at orderly resolution of financial institutions (preventing meltdowns of the financial system) are at the very essence of this policy objective.

Following its new competence on foreign direct investment granted by the Lisbon Treaty, the EU has developed a comprehensive investment policy, part of which is the negotiation of bilateral agreements that contain investment protection standards. Those are to replace progressively Member States bilateral treaties. A classical investment protection standard is the obligation to compensate an expropriation. Resolution procedures, which can end up in reducing or nullifying the value of assets belonging to third countries investors, might therefore be interpreted as violating this principle. This is however highly theoretical, in particular since resolution is only an ultimate option to which one resorts once all others have been exhausted. In any event, the need to quantify the possible compensation-related liabilities is limited because of the safeguard that resolution should leave no-creditor-worse-off (NCWO) than in insolvency. Furthermore, any residual risk would be addressed in EU agreements by the above mentioned prudential exception.

EU Member States are currently parties to more than 1400 bilateral investment treaties with third countries. As in the case of EU agreements, the operation of the NCWO safeguard would make compensation-related liabilities under these agreements highly unlikely. Any residual risk would have to be addressed by the Member States, which have an obligation to ensure that their international agreements conform to their Treaty obligations.

Resolution and other prudential issues are extensively dealt with in specialised international fora. This work aims *inter alia* to ensure the harmonised and non-discriminatory application of prudential norms. With respect to resolution, the relevant body is the Financial Stability Board. The scope of the FSB key attributes for effective resolution regimes includes any systemic financial institutions, be it banks, FMIs, insurers and others such as asset managers, the funds they manage, and finance companies. Bespoke annexes to these key attributes were finalised in October 2014 for

⁹⁷ From the GATS financial services annex: “Notwithstanding any other provisions of the Agreement, a Member shall not be prevented from taking measures for prudential reasons, including for the protection of investors, depositors, policy holders or persons to whom a fiduciary duty is owed by a financial service supplier, or to ensure the integrity and stability of the financial system”.

FMI and the largest insurers, while work is only starting on comparable policy measures for asset managers, investment funds and finance companies. In response to the recent financial crisis, a number of countries have already introduced resolution regimes beyond banks⁹⁸. For example, the US is able to apply the recovery and resolution provisions of the Dodd-Frank Act to any systemic non-bank institution, including CCPs, other FMIs and insurers, whose failure could lead to broader systemic consequences that could undermine financial stability⁹⁹; and due to the broad definition of credit institutions in Germany the bank resolution regime is also available to CCPs with banking licences.¹⁰⁰

International commitments taken by the EU at the G20 will have to be considered to ensure that the implementation of the proposed policies is not incompatible with the EU's obligations. The Key Attributes will provide a basis from which G20 members will develop recovery and resolution regimes for financial institutions, including CCPs. Since financial services operate within a global market, it will be important to monitor continually the implementation of recovery and resolution regimes in other G20 members, to ensure that the EU is resilient and prepared for the next financial crisis but is not, at the same time, placed at a competitive disadvantage (as market participants may simply move their business to a jurisdiction that has either weaker rules or none at all). Therefore any potential loss of competitiveness or opportunities for regulatory arbitrage will have to be taken into account when deciding on the best way to implement the desired policy initiatives. Particular attention will also need to be given to countries that are not part of the G20, as they are not bound by the Group's commitments. Without a clearer idea of what third-country recovery and resolution actions may entail, it is hard to judge how large an impact the actions of third country authorities might be on the competitiveness of the EU and the means by which the EU could address potential disadvantages are unknown.

Finally, in view of CCPs' reach in providing services internationally to third country participants, in line with FSB principles and in accordance with the agreed approach in the BRRD for banks, it will be important to develop procedures for recognising and enforcing the resolution proceedings of third-country CCPs that have a legal presence in the Union or that have assets and liabilities located in the Union which need to be transferred or restructured. It will also be necessary to ensure that third country resolution proceedings do not have a destabilising impact in the Union or treat EU stakeholders of these entities in an inequitable manner in comparison to the non-EU stakeholders. Authorities should cooperate and strive for a smooth cross-border process in the event of distress to ensure continuity and legal certainty.

7.7 Environmental impacts

This proposal has no impacts on the environment.

⁹⁸ These include: Australia, Brazil, Canada, France, Germany, Hong Kong, Italy, Japan, Korea, Mexico, Netherlands, Russia, Singapore, Spain, Switzerland and Turkey. See FSB thematic review on resolution regimes, peer review report, April 2013
http://www.financialstabilityboard.org/publications/r_130411a.pdf

⁹⁹ See annex IV for a description of the US regime.

¹⁰⁰ <http://www.bis.org/publ/bcbs200.pdf>

7.8 Summary of impact on key stakeholder groups of preferred options

<i>Stakeholder</i> <i>Policy option</i>	CCP	CCP shareholder	CCP employees	Clearing members of CCPs (direct participants)	Clients of clearing members (indirect participants)	SMEs	Supervisors/ Resolution authority	Taxpayers
No policy change	Possible disorderly failure	Possible bail-out in the event of distress; moral hazard	Little change	Uncertainty: either bail-out and no change or possible ad hoc restructuring of contracts; moral hazard	Uncertainty: either bail-out and no change or possible ad hoc restructuring of contracts	Possible indirect economic harm from financial instability	Limited powers to prevent, and mitigate effects of, disorderly non-bank failure	Possible significant costs from bail-out
Improved preparedness and prevention through: (i) Recovery plans (ii) Resolution plans	Better and more comprehensive overall risk management	Greater certainty of how distress could affect their assets	Possible organisational restructuring	Greater certainty of how distress could affect their positions	Greater certainty of how distress could affect their positions	Indirect benefits in terms of CCPs' and authorities' better overall preparedness	Better idea of and capacity to overcome challenges to orderly recovery and resolution	Alleviated burden in terms of CPPs' and authorities' better overall preparedness

Improved early intervention measures through: (i) Enhanced early intervention tools (ii) Recapitalisation plans	Possible requests to introduce changes to business practices or management amid distress	Possible effects, e.g. in terms of dilution of ownership amid recapitalisation amid distress	Possible organisational restructuring	Possible modifications to the way recovery measures undertaken	Possible modifications to the way recovery measures undertaken	Possible indirect benefits from averted financial instability	Better ability to tackle problems before they become critical or if recovery measures undertaken by CCPs risk instability	Alleviated burden in terms of lower likelihood of bail-out
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<p>Establishment of resolution measures for CCPs through:</p> <ul style="list-style-type: none"> (i) Soft trigger (ii) Choice of tools such as: <ul style="list-style-type: none"> – Write-down of equity and debt – Additional loss-absorbency – Transfer to bridge/3rd party – Temporary administration – Moratorium, stay 	<p>End to business as usual in case of (near) failure, deep restructuring with a view to restoring only critical functions</p>	<p>Probable write-down of assets as in insolvency</p>	<p>Possible layoffs or changes to contracts amid distress</p>	<p>Continuation of measures undertaken in recovery or use of alternative measures set out in the resolution plan, with possibility for impacts to be distributed differently</p>	<p>Continuation of measures undertaken in recovery or use of alternative measures set out in the resolution plan, with possibility for impacts to be distributed differently</p>	<p>Indirect benefits from averted financial instability</p>	<p>Comprehensive tools to restore critical functions and avoid financial instability or widespread harm to economy</p>	<p>Alleviated burden in terms of effective tools as an alternative to bail-out</p>
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Improved cooperation and coordination ¹⁰¹	Lower likelihood of ring-fencing or other obstacles to free movement	Greater clarity of how distress could affect their assets and certainty of equivalent treatment	Little change	Greater certainty of equivalent treatment in distress	Greater certainty of equivalent treatment in distress	Indirect benefits from averted financial instability and better functioning Single Market	Joint preparation for distress scenarios and consistent execution of intervention actions	Alleviated burden in terms of lower likelihood of ad hoc national measures and costs
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¹⁰¹ As noted above, while the objective of improved cross-border cooperation is not discussed separately as a distinct set of options in this impact assessment and it is rather considered implicit in all policy options and notably those which are preferred that the necessary cooperative and cross-border institutional framework would have to be designed to execute them, the anticipated impacts are summarised in this table. See also annex XII, part 2.

<p>Improved financing of a resolution through loss allocation measures:</p> <ul style="list-style-type: none"> – Cash call – Auction/allocation – Tear-up – Variation margin haircutting 	<p>Creditors of old entity bear losses; some creditors can become new shareholders of resolved entity through conversion of claims or other compensation measures</p>	<p>Probable write-down of assets as in insolvency</p>	<p>No direct losses placed onto employees via the measures but possible layoffs amid overall restructuring</p>	<p>Continuation of measures undertaken in recovery or use of alternative measures set out in the resolution plan, with possibility for impacts to be distributed differently and possible wind-down of the CCP</p>	<p>Continuation of measures undertaken in recovery or use of alternative measures set out in the resolution plan, with possibility for impacts to be distributed differently and possible wind-down of the CCP</p>	<p>Indirect benefits from averted instability, possible lingering effects for access to finance if confidence takes time to return</p>	<p>Better ability to shift losses to the extent private stakeholders</p>	<p>Burden of bail-out shifted onto private stakeholders. Any public money clawed back from industry</p>
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8. MONITORING AND EVALUATION

Failures of CCPs are rare, not easy to predict and, if possible, should be avoided. Consequently, it is not foreseen that the functioning of resolution for CCP failures can be monitored on the basis of how real CCP failures will be regularly handled. Rather, the preparation and prevention phase, especially the development of proportionate recovery and resolution plans and the measures implemented by CCPs and authorities based on these plans could be monitored based on follow-up with relevant national authorities. Consequently, these preparatory steps would constitute the most tangible medium-term monitoring indicators for assessing whether the operational objectives (in section 5 above) are being met. In the event of distress, other suitable indicators to monitor would be whether, when and how CCPs are activating their recovery plans and whether, when and how supervisory authorities are taking action in accordance with the early intervention powers granted by the framework. Finally, in the event of failure and of the resolution conditions being met, the indicators to monitor would be when resolution authorities intervene, which tools they use, and how any losses are shared among private stakeholders. This corresponds to monitoring work being undertaken in the implementation of the Bank Recovery and Resolution Directive, which is being used to inform how well the framework is delivering on its intended objectives.

A targeted examination of the functioning of specific provisions as well as a more general review could be carried out within 3-5 years. A more complete monitoring and evaluation strategy could also be developed in this timeframe, also building on the experience of the functioning of the bank recovery and resolution regime.

ANNEX I – GLOSSARY

Administration	Under this resolution model, the authority would appoint an administrator to the failing institution who would restructure and wind it up.
Asset-liability mismatch	A change in value from a deviation between asset and liability cash flows, prices, or carrying amounts, caused by: <ul style="list-style-type: none"> • a change in actual cash flows (for assets and/or liabilities); • a change in the expectations on future cash flows (for assets and/or liabilities); • accounting inconsistencies.
Bilateral collateral agreement	An agreement that defines the terms or rules under which collateral is posted or transferred between counterparties to an OTC derivative contract.
Bridge institution	A 'bridge' institution (typically a bank) is a temporary licensed institution created, and generally owned by or on behalf of, the national authority to take over the viable business of the failing institution and preserve it as a going concern while the authority seeks to arrange a permanent resolution, such as to a suitable private sector purchaser.
Business risk	Unexpected changes to the operating and legal conditions to which a financial institution could be subject to; for instance, changes in the economic and social environment, as well as changes in business profile and the general business cycle.
Central counterparty (CCP)	A legal person that interposes itself between the counterparties to the contracts traded on one or more financial markets, becoming the buyer to every seller and the seller to every buyer.
Central Securities Depository (CSD)	An institution which operates a system to enable securities settlement, i.e. the delivery of securities to the buyer against the delivery of cash to the seller, and which ensures the maintenance of securities accounts that record issued securities and changes in their ownership.
Clearing	The process of establishing positions, including the calculation of net obligations, and ensuring that financial instruments, cash, or both, are available to secure the exposures arising from those positions.
Clearing member/direct participant	An undertaking which participates in a CCP and which is responsible for discharging the financial obligations arising from that participation.
Cash call	Additional resources to be provided by clearing members to the CCP. Cash calls can be determined in different ways (a fixed amount irrespective of the participant's assets, proportionate to prefunded default fund contributions, proportionate to the activity of the participant at the CCP, etc.) and can be capped.
Collateral	An asset or third-party commitment that is used by the collateral provider to secure an obligation to the collateral taker. Collateral arrangements may take different legal forms; collateral may be obtained using the method of title transfer or pledge.
Contagion	The propagation of the effect of a failure or financial distress of

	an institution in a sequential manner to other institutions, markets or systems, or to other parts of a financial group or financial conglomerate.
Counterparty credit risk	The risk that a counterparty will not settle an obligation for full value, either when due or at any time thereafter. Credit risk includes pre-settlement risk (replacement cost risk) and settlement risk (principal risk).
CPSS/CPMI	Committee on Payment and Settlement Systems/Committee on Payment and Market Infrastructures. As of 1 September 2014 the Committee on Payment and Settlement Systems has changed its name to Committee on Payments and Market Infrastructures .
Credit risk	The risk of a change in value due to actual credit losses deviating from expected credit losses due to the failure to meet contractual debt obligations. Credit risk comprises default and settlement risk. Credit risk can arise on issuers of securities (in the company's investment portfolio), debtors (e.g. mortgagors), or counterparties (e.g. on derivative contracts, or deposits) and intermediaries, to whom the company has an exposure.
Default fund	A fund composed of assets contributed by a CCP's clearing members that may be used by the CCP in certain circumstances to cover losses that exceed the losses to be covered by margin requirements, resulting from defaults by one or more of the CCP's clearing members.
Early intervention	Remedial actions by competent authorities that take place as the health of the financial institution significantly with a view to correcting problems within the institution and safeguarding overall financial stability.
Exposure	The amount of funds at risk, i.e. the amount that one may lose in an investment.
Fair value	The amount for which an asset could be exchanged or a liability settled, between knowledgeable, willing parties in an arm's length transaction. This is a similar concept to market value, but the fair value may be a mark-to-model price if no actual market price for asset/liability exists.
Financial group	A group of undertakings deploying financial activities, which consists of a parent undertaking, its subsidiaries, and the entities in which the parent undertaking or its subsidiaries hold a significant participation.
Financial Stability Board (FSB)	A Board, established in April 2009, that coordinates at the international level the work of national financial authorities and international standard setting bodies and to develop and promote the implementation of effective regulatory, supervisory and other financial sector policies in the interest of financial stability.
Going concern	A going concern is a business that functions for the foreseeable future.
Good institution/bank – Bad institution/Bank	A bad or good institution/bank is created when authorities separate good from bad assets by selling nonperforming and 'toxic' or difficult-to-value assets to a separate asset management vehicle (often referred to as a 'bad bank'). The aim is to sanitise

	the balance sheet of the failing entity in order to restore it to viability or with a view to facilitating a private sector solution.
G-SIFI	Global systemically important financial institution (G-SIB for banks, G-SII for insurers, NBNI G-SIFI for non-bank, non-insurers).
Hedge	A position established in one market in an attempt to offset exposure to the risk of an equal but opposite obligation or position in another market.
Indirect participant/client	A client institution that clears via a clearing member or a clearing member's client.
Initial margin haircutting	Initial margin haircutting consists in the reduction of initial margin provided by non-defaulting clearing members who would have to replenish it. Under the current EU prudential framework (Regulation (EU) No 648/2012) initial margins enjoy a special protection.
Insolvency	The point at which under national bankruptcy procedures the owner loses ownership rights and/or the liability-holders such as policyholders are no longer entitled to the orderly settlement of contracts.
International Organisation of Securities Commissions (IOSCO)	Established in 1983, is the acknowledged international body that brings together the world's securities regulators and is recognized as the global standard setter for the securities sector. IOSCO develops, implements, and promotes adherence to internationally recognized standards for securities regulation, and is working intensively with the G20 and the Financial Stability Board (FSB) on the global regulatory reform agenda.
Legal risk	The possibility that lawsuits, adverse judgements from courts, or contracts that turn out to be unenforceable, disrupt or adversely affect the operations or condition of an institution
Leverage	A financial ratio that compares some form of owner's equity (or capital) to borrowed funds or assets.
Margin (initial/variation)	An asset (or third-party commitment) that is accepted by a counterparty to ensure performance on potential obligations to it or cover market movements on unsettled transactions. 'Initial margin' means margins collected by the CCP to cover potential future exposure to clearing members providing the margin and, where relevant, interoperable CCPs in the interval between the last margin collection and the liquidation of positions following a default of a clearing member or of an interoperable CCP default. 'Variation margin' means margins collected or paid out to reflect current exposures resulting from actual changes in market price.
Market discipline	The creation of disciplining pressure through the publication of financial information and other information about the institution's activities to the public, or only to shareholders and creditors, providing transparency, hence allowing market participants to assess key organisational and product information.
Market value	The amount for which an asset could be exchanged or a liability settled, between knowledgeable, willing parties in an arm's length

	transaction based on observable prices within an active market.
Marking to market	The practice of revaluating open positions in financial instruments at current market prices and the calculation of any gains or losses that have occurred since the last valuation.
Mark-to-market valuation	The practice of valuing rights and obligations, or more broadly security and financial instruments, using current market prices.
Mark-to-model valuation	The practice of valuing rights and obligations, or more broadly security and financial instruments based on modelling.
Matched book (for CCPs)	CCPs run what is described as a ‘matched book’: any position taken on by one counterparty is always offset with an opposite position taken on with a second counterparty.
Multilateral netting	Netting on a multilateral basis by summing each participant’s bilateral net positions with the other participants to arrive at a multilateral net position. Such netting is often conducted through a central counterparty (but it can also be done by other entities). In such cases the multilateral net position represents the bilateral net position between each participant and the central counterparty.
Netting	The offsetting of positions or obligations by counterparties.
Netting set	A group of positions between an institution and a counterparty.
Normal insolvency proceedings	Collective proceedings under national law which entail the partial or total divestment of a debtor and the appointment of an administrator or liquidator
Notional amount	The reference amount on which a derivative contract is written.
Novation	The replacement of a contract between two initial counterparties to a contract with a new contract or with two contracts in the case of CCP clearing.
Open interest	The total number of open derivative contracts on a specific underlying.
OTC	The phrase "over-the-counter" (or OTC) can be used to refer to stocks that trade via a dealer network as opposed to on a centralised exchange. It also refers to debt securities and other financial instruments such as derivatives, which are traded through a dealer network.
OTC derivative	A derivative contract the execution of which does not take place on a regulated market as within the meaning of Article 4(1)(14) of Directive 2004/39/EC or on a third-country market considered as equivalent to a regulated market in accordance with Article 19(6) of Directive 2004/39/EC.
Position	The stance an investor takes vis-à-vis the market. An investor's position is said to be long (short) when she buys (sells) a financial instrument.
Probability of default	The likelihood that a counterparty will not repay contractual obligations according to the agreement.
Pro-cyclicality	The cumulative pressure on a larger number of institutions to sell assets or raise capital at the same time and thereby potentially cause more extreme market movements than would otherwise be the case.
Receivership	Under this resolution model, and in order to apply the resolution tools, resolution authorities would have the power to take control of an institution upon a decision that it is failing or likely to fail.

	Upon taking control of the institution, the resolution authority would manage its property and exercise all the powers of its shareholders and its management, exercise the transfer powers and wind up the residual failed institution.
Reputational risk	Type of business risk. The risk that adverse publicity regarding an undertaking's business practices and associations, whether accurate or not, will cause a loss of confidence in the integrity of the institution.
Resolution	Procedures and tools for the restructuring or orderly dissolution of ailing financial institutions while preserving critical functions which are essential for maintaining financial stability.
Scenario analysis	Simulation of an alternative set of parameters within a model in order to establish the impact on the outcome. The following types of scenarios analysis can be distinguished, for example, by: <ul style="list-style-type: none"> • Historical scenarios; • Hypothetical scenarios; • One-off events (e.g. simulation of strategic decisions).
Segregated account	An account used for the segregation of a client's assets e.g. in a CCP.
Set-off / Netting	An agreement between two parties to balance one debt against another or a loss against a gain.
Settlement	The completion of a transaction, wherein the seller transfers securities or financial instruments to the buyer and the buyer transfers money to the seller.
Stress test	A type of scenario analysis in which the change in parameters are considered significant, or even extreme.
Variation margin haircutting	Variation margin haircutting consists in the reduction pro-rata by the CCP of the amount that it is due to pay to participants with in-the-money (net) positions, while continuing to collect in full from those participants with out-of-the-money (net) positions.

ANNEX II – ROLE AND FUNCTION OF CENTRAL COUNTERPARTIES¹⁰²

Securities transactions typically involve three sequential and distinct steps: (i) trade execution, (ii) clearing and (iii) settlement. Clearing and settlement are both "post-trade" activities.

A CCP centralises counterparty risk management. A CCP's rulebook defines legally binding obligations and rights over all participants (clearing members and their clients) that clear and settle over its infrastructure. It further sets out the procedures when there is a (clearing member) default event, as well as other (non-default) events. The customers of a CCP are usually referred to as participants or members to reflect the rule-based nature of the CCP service (see glossary in Annex I for the distinction between direct participants/clearing members and indirect participants/clearing clients).

The CCP ensures that it can meet its payment and delivery obligations by collecting sufficient collateral (or "margin" – see glossary in Annex I) from each trading party to be used to cover any losses incurred if the collateral-giving party defaults and the CCP had to replace the trade at the prevailing market price. The CCP calculates collateral requirements based on each member's exposures, open obligations and the prevailing market conditions.

A CCP's competence in risk management is critical – users do not want suddenly to discover they do not have the protection they thought they had. If insolvent, a CCP could no longer honour its guarantee on trades that have not yet settled. All CCPs have some form of loss sharing among its members (often via a central guarantee or default fund) as required under EMIR, which would be invoked if a member default results in losses that exceed the collateral collected from the defaulter.

Exposure to loss sharing amongst the clearing members highlights the importance of user governance. As central risk manager, a CCP should inform and consult with members on matters that substantively affect the risks in the system. As potential loss-sharers, the members need to have influence over how risk mutualisation is achieved and what risk levels are acceptable. Members should pay attention to the level of risk the CCP is taking and what influence they have as paying customers over these decisions.

In addition, as a critical market infrastructure, a CCP should have robust systems and processes to manage and mitigate against counterparty risk, a good track record in delivering service enhancements on time and without flaws, and have scalable capacity to handle surges in volumes. As a service provider, it should be flexible and responsive to customer needs, but should do so without compromising safety.

Value for money and pricing are also key considerations. Some participants choose CCPs primarily on visible costs, including the level of clearing fees and the amount of collateral required. Invisible costs include penalty fees on settlement fails and spread retained by the CCP on cash collateral.

¹⁰² The descriptions regarding CCPs in annexes II, VII, and VIII rely considerably on Pirrong, C., "The Economics of Central Clearing: Theory and Practice", ISDA Discussion Papers Series No.1, May 2011.

ANNEX III – INTERNATIONAL WORK ON CCPs (AND OTHER FINANCIAL MARKET INFRASTRUCTURES) (CPSS/CPMI-IOSCO AND FSB)

I. Background

In April 2012, the Committee on Payments and Market Infrastructures (CPMI) and Settlement Systems (CPSS) and the Technical Committee of the International Organization of Securities Commissions (IOSCO) published the Principles for Financial Markets Infrastructures (hereinafter "PFMIs"). According to the PFMIs, all systemically important FMIs should have comprehensive and effective recovery plans.

Furthermore, in July 2012 the CPSS and IOSCO published its Consultative Report on Recovery and Resolution of Financial Market Infrastructures (hereinafter "the Consultative Report"), in which the need for CCPs to have effective plans to recover from financial stresses and the need of jurisdictions to have effective powers for the resolution of CCPs when recovery is no longer feasible was confirmed. According to the Consultative Report, *"these preventive and recovery measures include plans for allocating uncovered credit losses and liquidity shortfalls, as well as maintain viable plans for restoring an FMI's ability to operate as a going concern or to wind down its operations in an orderly manner"*.

In August 2013, CPSS and IOSCO published a further consultative report with guidelines on the Recovery of FMIs, while the Financial Stability Board (FSB) published a consultative document on the Application of the Key Attributes of Effective Resolution Regimes to Non-Bank Financial Institutions. Final versions of these were published in October 2014. While they covered FMIs more broadly, the summary below refers primarily to CCPs, in line with the focus of this impact assessment.

II. Recovery

Recovery plan

In the CPSS-IOSCO report, *"recovery"* concerns the ability and actions of a CCP, consistent with its rules, procedures, and other ex-ante contractual arrangements, to address any uncovered loss, liquidity shortfall or capital inadequacy including actions to replenish any depleted pre-funded financial resources, liquidity arrangements or severe business and operational problems, as necessary to maintain the CCP's viability as a going concern so that it can continue to provide its critical services without requiring the use of resolution powers by authorities and without the use of taxpayers' money.

Recovery planning therefore concerns those aspects of risk management and contingency planning which address the extreme circumstances that could threaten the CCP's viability and financial strength. Those "extreme circumstances" should be identified in advance, to the extent possible, by the CCP. Therefore, the recovery plan would allow the CCP to recover and continue to provide its critical services when its viability is threatened by the aforementioned situations. The recovery plan should also address the need to replenish any depleted pre-funded financial resources and liquidity arrangements so that the CCP can remain viable and continue to provide its critical services.

According to the PFMIs and the final version of the report, CCPs need to develop comprehensive and effective recovery plans that identify critical operations and services, scenarios that may potentially prevent the CCP from being able to continue providing its critical services as a going concern, and the strategies and measures necessary to ensure

continued provision of critical operations and services should those scenarios occur. Some discretion as to the use of specific tools and as to the order in which they may be used could be left in the recovery plans. Even if there is an ex-ante agreement on the use of a specific tool, there may still be the possibility of making the use of that tool automatic in a given situation or giving the CCP the possibility of some discretion on the use of that specific tool.

The primary responsibility for planning and implementing a CCP's recovery plan rests with the CCP itself. It should be endorsed by the CCP's board of directors or equivalent governing body. The interests of all stakeholders, who are likely to be affected by the recovery plan, should be considered when the recovery plan is being developed or implemented. Those who would bear losses or liquidity shortfalls should be involved in the formation of the plan. The CCP should have an effective governance structure, sufficient resources and the necessary powers to implement the recovery plan effectively and in a timely manner. In this respect, the CCP needs to assess the legal enforceability of the recovery plan, taking into account any constraints imposed by national or foreign regulations. Moreover, the CCP should test and review its recovery plan regularly, at least annually and following any material change to the plan, rules or procedures. Recovery plans should be updated following the completion of each test or review.

The role of the authorities

The relevant authorities should ensure that CCPs develop their recovery plans. Moreover, the CCP's direct supervisor, regulator or overseer should be responsible for ensuring compliance with this requirement, as well as for monitoring and assessing periodically the adequacy of the recovery plan (taking into account also potential impact on market participants)¹⁰³. The relevant authorities should also have the necessary powers to ensure that the CCP corrects the deficiencies detected in the recovery plan.

The relevant authorities should oversee the implementation of the recovery plan. They should also have the necessary powers to require the implementation of recovery measures and drive optimal execution when the CCP's execution of the relevant measures may be suboptimal in terms of timelines, judgement or discretion, anticipated conflicts of interest, uncontrollable external factors and human error resulting in poor or inadequate execution. Those powers may include issuing of directions or orders, imposing penalties or fines or even forcing a change of management. The relevant authorities should coordinate with the designated resolution authority, as necessary. Where a CCP is systemically important to multiple jurisdictions, cooperation among authorities is necessary.

Content of the recovery plan

The recovery plan should contain the following: (i) the identification of critical services; (ii) the identification of stress scenarios; (iii) the identification of recovery triggers; (iv) a substantive description of the recovery tools; and (v) the tools to address structural weaknesses.

(i) *Identification of the critical services* that are important for the CCP's participants and other CCPs and to the smooth functioning of the markets the CCP serves and, in particular, the maintenance of financial stability. Their identification should be done in

¹⁰³ The implementation of recovery plans by several CCPs at the same time as well as the implementation in parallel of the recovery plan of one or more systemically important participants should be taken into account in this assessment.

close coordination with the relevant authorities and in consultation with relevant stakeholders.

(ii) *Identification of the stress scenarios*, both idiosyncratic and system-wide stress scenarios, which may prevent the CCP to provide its critical services as a going concern, such as credit losses or liquidity shortfalls created by a participant default, business or investment losses or liquidity shortfalls, as well as risks arising from other entities belonging to its group or with links with other CCPs.

(iii) *Identification of the criteria, both quantitative and qualitative, which will trigger the implementation of all or part of the recovery plan*. Triggers should occur early enough to have sufficient time for the implementation of the recovery plan. These triggers should be followed by careful consideration of the action lines to take.

(iv) *Identification of the recovery tools*, as well as the necessary steps and timelines for their implementation, which would allow covering extreme stress scenarios not covered by pre-funded financial resources or liquidity arrangements. Where several tools are involved, the implementation sequence of those tools and an estimation of the time needed to implement each tool should be indicated in the recovery plan.

(v) *Identification of the tools to address structural weaknesses*, in order to address the underlying cause of the weakness, such as revising risk management frameworks, replacing management, revising business strategy, restructuring the services provided, selling business units, merging with another CCP, reducing risks and taking measures to reduce complexity and interconnectedness.

III. Recovery tools

CCPs are required under the PFMIs to have recovery tools that allow it to fully allocate any uncovered losses and liquidity shortfalls.¹⁰⁴ A CCP, for example, will typically collect margin (article 41 of EMIR), maintain a default fund (article 42 of EMIR) and maintain liquid resources to cover its current and potential future exposures and liquidity needs. In the event of a clearing member default, the CCP can activate its default management process, utilise available resources in order to meet its settlement obligations, and allocate any losses as provided for in its rules and procedures. CCPs that take on credit risk have a "waterfall" that determines the order in which different types or resources are drawn upon to absorb losses (article 45 of EMIR).

The PFMIs also require a CCP that faces credit risk to have rules and procedures that address how credit losses in excess of these financial resources would be allocated. That may be through, for example, applying haircuts to the margin and collateral owing to surviving clearing members, and perhaps other types of participants, or through calls for additional cash contributions.

Notwithstanding the precise sequence, participants would need to be bound by these ex-ante rules and the CCP would therefore have contractual arrangements that should allow it to recover from credit losses in many circumstances, such as due to a clearing member default, uncovered liquidity shortfalls, losses from general business risks as well as losses from custody and investment losses.

¹⁰⁴ CCPs are exposed to a great variety of risks that could threaten their viability, and in particular the default of a clearing member, potential losses on the CCP's investment portfolio or other business risk.

In the case of a CCP, enabling it to recover from a clearing member default requires not only loss allocation but also the re-establishment of a matched book and restoring the minimum capital and financial resources required by regulation. This is critical to ensuring that a CCP can meet its on-going obligations to surviving clearing members and therefore limit the CCP's exposure to further loss.

In order to choose the recovery tools, the different effects that the recovery tools could have on the CCP, other CCPs to which it is linked, its clearing members and their clients as well as the financial system as a whole should be taken into account. The tools should be comprehensive, effective, transparent, measurable, manageable and controllable, create the appropriate incentives and have minimum negative impact. Direct participants' exposure to losses should be specified as far as possible in ex-ante rules and agreements (pre-funded default resources, additional resources in the event of a default, etc.). Losses may be allocated to all direct participants or be limited to participants in product classes. Indirect participants such as clearing members' clients may be exposed to the extent specified in ex-ante agreements with the relevant participants. Recovery tools may also have an impact on owners or shareholders of the CCP.

The following tools could be used as recovery tools (and some of them could also be used as resolution tools):

Examples of recovery tools to allocate uncovered losses caused by a clearing member default:

- Cash calls on participants, which are additional resources to be provided by clearing members to the CCP. They can be determined in different ways (a fixed amount irrespective of the clearing member's assets with the CCP, proportionate to prefunded default fund contributions, proportionate to the activity of the participant at the CCP, etc.). Cash calls can be capped or uncapped.
- Variation margin haircutting (or other gains-based haircutting) by the CCP, which consists in the reduction pro-rata by the CCP of the amount that it is due to pay to its participants with positive net positions.
- Initial margin haircutting (in jurisdictions where it is allowed), which would require subsequent replenishment of the initial margin haircut. Noting that EMIR prevents CCPs undertaking haircutting.

Examples of recovery tools to address uncovered liquidity shortfalls:

- Access to liquidity from third party institutions.
- Obtain liquidity from non-defaulting participants, either from participants who are owed funds or from all participants.

Examples of recovery tools to replenish financial resources:

- Cash calls on participants.
- Recapitalisation or issuance of new equity.

Examples of recovery tools to allocate losses not related to participant defaults:

- Recapitalisation.

- Explicit insurance or indemnity agreements.

Examples of recovery tools for a CCP to re-establish a matched book

- Auction of the open positions of the defaulted member(s) to the remaining non-defaulting clearing members.
- Forced allocation of the open positions of the defaulted member(s) to the remaining non-defaulting clearing members.
- Contract termination ('tear-up'). A price should be established upon termination (last available marked to market prices, and to the extent that resources are insufficient, reduced pro-rata). Termination could be done of all open positions in the CCP, of all open positions in a particular service, only of the contracts needed to offset the defaulted contracts and/or contract tear-ups subject to appropriate safeguards to minimise impacts on netting sets.

IV. ENTRY INTO RESOLUTION

Definition

According to the CPMI-IOSCO and FSB, resolution should be initiated once a CCP is no longer viable, and has no reasonable prospect of sustaining or recovering viability within a reasonable timeframe through other actions taken by the CCP at the recovery stage (that do not themselves compromise financial stability). This would, in particular, be the case when:

- recovery measures taken by the CCP, including the use of its default resources and application of any loss allocation rules, have failed to return the CCP to viability or have not been implemented in a timely manner; or
- the relevant oversight, supervisory or resolution authority determines that recovery measures are not reasonably likely to return the CCP to viability or would otherwise be likely to compromise financial stability.

Objectives of a resolution regime

An effective resolution regime for CCPs should ensure continuity of critical CCP functions and should pursue financial stability without recourse to public funds. During resolution, critical functions of the CCP should be maintained by the successor of the CCP or through an alternative mechanism, including:

- timely settlement of obligations due to participants and any linked FMI;
- continuous access of participants to securities or cash accounts provided by the CCP and (securities or cash) collateral posted to and held by the CCP;
- no disruption in the operation of links between the CCP in resolution and other FMIs.

The resolution regime should apply to systemically important CCPs, whatever the structure of their ownership, but not to CCPs owned and operated by central banks.

The resolution regime should also be subject to the “no creditor worse off than in liquidation” safeguard. Finally, the starting point for allocating losses in resolution should be based, as far as practical, on the CCP's ex-ante rules and procedures for loss allocation.

The resolution authority and its powers

In principle, a CCP resolution process should be conducted by a resolution authority or through another entity with similar functions, such as a special administrator or conservator.

The resolution powers that the resolution authority could apply in respect of a CCP should be determined by the objective to continue the CCP's critical functions. They should take into account, in particular, the CCP's capital structure, available assets, default resources, loss allocation arrangements, risk profile, type and number of products cleared, general business and operational risks and the recovery measures taken by the CCP. The impact on other participants of the CCP, interconnectedness with other CCPs or FMIs, and other stakeholders, regardless of where they are located, as well as the impact on wider financial markets, should also be considered.

Funding of CCP resolution

The CCP resolution process should aim at avoiding recourse to public funds. In the event that the resolution authority has the power to provide temporary funding or to place a CCP under temporary public ownership and control in order to ensure continuity of its critical functions, provisions should be made to recover any funds provided by the public authorities from shareholders, unsecured creditors (including the CCP's participants) or, if necessary, the financial system more widely.

Co-operation with central banks

In jurisdictions where the central bank is not at the same time the resolution, supervisory or oversight authority of a CCP, the resolution authority or other authority with similar functions should consult and cooperate with the central bank when planning or carrying out the resolution of the CCP.

Resolution tools

There are a number of tools that the resolution authority could choose to apply depending on the severity of the situation of the particular CCP and the aspects described at point 3 above. Certain tools could also apply at a recovery stage as set out in the CCP's rules and arrangements with clearing members.

The rules and procedures for loss mutualisation or allocation applicable to CCPs should generally be applied prior to entry into resolution (unless it is necessary or appropriate to initiate resolution before those rules and procedures have been exhausted for achieving the resolution objectives). Where any such rules and procedures have not been implemented prior to entry into resolution, the resolution authority should have the power to enforce their implementation.

Any licenses, authorisations, recognitions or memberships in other FMIs (including recognition for the application of the settlement finality rules) granted to a CCP and necessary for the continued performance of its critical functions in resolution should remain effective until the CCP has been transferred to another entity. They could only be revoked for a reason other than entry into resolution.

Temporary administration:

The CCP resolution authorities should have the authority and capacity to ensure the continued provision of the CCP's critical functions until the CCP's viability is restored, the critical functions transferred or replaced by another provider or the CCP is wound down in an orderly manner.

Powers to allocate losses:

In addition, the resolution authority should have the powers, subject to relevant safeguards, to:

- enforce any existing and outstanding contractual obligations of the CCP's participants to meet cash calls, make further contributions to a guarantee or default fund, or any other CCP loss allocation rules (including the repayment of liquidity providers) where they have not already been applied exhaustively prior to the entry into resolution;
- enforce existing and outstanding obligations of the CCP to participants, pursuant to the rules and procedures of the CCP to accept allocations of the positions of a defaulting participant.
- write down (fully or partially) equity in the CCP;
- write down and/or convert to equity (“bail in”) unsecured debts of the CCP in a manner that respects the hierarchy of claims under the applicable insolvency regime;
- terminate (“tear up”) or close-out of contracts;
- reduce the value of gains (in particular variation margin) payable by the CCP to participants; and
- Write-down of initial margin where not remote from the insolvency of the CCP and where consistent with the applicable legal framework.

Transfer of critical functions to a third party entity or bridge CCP:

The resolution authorities should have the power to transfer (notwithstanding any requirements for consent or novation) to a third party purchaser (alternative service provider) or a bridge CCP the ownership of a CCP or all or its critical operations, including all associated rights and obligations and service-level agreements. When a bridge CCP is created, the continuity of the CCP's legal and technical arrangements, domestic or cross-border links with other FMIs or other critical service providers, protection of settlement finality and relevant contractual arrangements should be ensured. This may require appropriate ex-ante agreements. Any licenses, authorisations, recognitions and legal designations of the CCP necessary for the continued performance of its critical functions in resolution (including the recognition for the purposes of the relevant settlement finality rules) should be transferred or otherwise applied to the bridge CCP.

Termination (or “tear-up”) of contracts:

When considering whether to terminate all or part of the outstanding contracts of a CCP, the resolution authority should take into account, among other things, the impact on the financial stability and the impact on participants’ risk management.

Moratorium:

A resolution authority should not impose a moratorium on payments due by the CCP to its participants or to any FMIs linked to it if that moratorium would affect the ordinary flow of payments, settlements and deliveries being processed by the CCP in the course of its business or otherwise jeopardise or prevent the continuity of other critical functions performed by the CCP or a linked CCP. The resolution authority could impose a moratorium on payments to general creditors (that is creditors whose claims are not the result of the use of the CCP's critical functions).

Temporary stay on early termination rights:

A resolution authority could impose a temporary stay on the exercise by the CCP's participants and other relevant counterparties of early termination rights and set-off rights triggered by entry into resolution of the CCP.

Resolution planning for CCPs

CCPs should have in place up-to-date resolution plans and be subject to resolvability assessments by the relevant authorities. CCPs should test the effectiveness of their resolution plans as part of their contingency arrangements.

A CCP's resolution authority in cooperation with its oversight or supervisory authorities (where different) should develop resolution strategies and operational plans to facilitate the effective resolution of the CCP in a way that ensures continuity of the critical functions carried out by the CCP.

The authorities need to be informed of any impediments arising from the CCP rules and procedures that could affect the effective implementation of a resolution plan. They should have the powers to require the CCP to make changes to improve its resolvability including the changes to the arrangements related to delivery, segregation or portability of participants' positions or related collateral or links with other FMIs.

CCP resolution plans should at least:

- contemplate scenarios where some or all existing loss allocation arrangements between participants under the CCP rules have been fully put into effect, partially put into effect, or not implemented;
- consider and address the potential technical and legal barriers to the transfer of a CCP's functions;
- contemplate scenarios where there may be no existing alternative provider to which the critical functions of a CCP can be transferred in the short term;
- consider legal mechanisms under which collateral is provided (i.e. security interests or title transfer), the status of collateral in insolvency (i.e. its 'bankruptcy remoteness') and its implications, and the extent to which losses can be imposed under loss allocation rules of the CCP and the exercise of statutory powers; and
- take into account the impact on indirect participants;
- draft transition agreements allowing the CCP to continue providing uninterrupted critical services on behalf of a purchaser or bridge institution using existing staff and infrastructure; and
- a 'purchaser's pack' including key information on critical operations and service providers, IT procedures, creditors and list of key staff.

Access to information held by CCPs

In order to facilitate the implementation of resolution measures, CCPs should maintain information systems and controls so that they can promptly produce, both in normal times and during resolution, the relevant data and information needed for the purposes of timely resolution planning and resolution.

Cross-border co-operation

Cross-border Crisis Management Groups (CMGs) or other equivalent arrangements should be put in place for all CCPs considered systemically important in more than one

jurisdiction. Resolvability assessments should be carried out by the home resolution authority of the CCP and coordinated within the CCP's CMG or under equivalent arrangements, in which authorities assess the feasibility and credibility of implementing the resolution strategies and operational resolution plans by assessing in particular:

- the technical and legal barriers to the transfer of the critical functions to another entity, including those arising from bespoke nature of the risk management and technical processes of individual CCPs;
- the ability of the transferee to assume and operate the critical functions;
- the impact of resolution strategies and measures set out in the operational resolution plan on CCP's participants and on any linked FMIs, including their ability to retain continuous access to the CCP's critical functions during the resolution process;
- the ability of the CCP in resolution to maintain access to the services of any linked FMIs and other service providers during the resolution process;
- the rights and obligations of the linked FMIs in the event of their failure that could affect the conduct of resolution and the ability to maintain enforcement rights over collateral;
- any interoperability agreements and any cross-margining or loss-sharing arrangements with other CCPs;
- the likely implications for resolution (including the availability of funds to repay liquidity providers) of the implementation of the CCP recovery plan, including any rules and procedures for loss allocation or forced allocation of contracts; and
- where the resolution plan provides for the transfer of the critical CCP functions to another entity or bridge institution, the robustness of any arrangements in place to facilitate the transfer and maintain continuity, including of the legal and technical arrangements, such as delivery-versus-payments arrangements.

ANNEX IV – RELEVANT US REGIME REGARDING CRISIS MANAGEMENT OF NONBANK FINANCIAL INSTITUTIONS

Treatment of non-banks other than financial market utilities

As per rules finalised in April 2013,¹⁰⁵ any non-bank company predominantly engaged in financial activities (banking, insurance, investment services, fund management, etc.) whose material financial distress (failure) or whose nature, scope, size, scale, concentration, interconnectedness, or mix of activities (risk profile and on-going activities) could pose a threat to the financial stability of the US, can be designated by the Financial Stability Oversight Council (FSOC) for supervision by the Federal Reserve, including the application of Dodd-Frank prudential standards.

When they account for 85% of their consolidated revenues or assets, non-bank companies are considered to be predominantly engaged in financial activities. Foreign non-bank companies can also be caught with the difference that only their US assets and operations are considered (as opposed to the global ones of US non-banks).

Besides supervision and capital requirements, Dodd-Frank prudential standards include the obligation to draw up resolution plans and, if the conditions are met, possible resolution by the Federal Deposit Insurance Corporation (FDIC) under Title II of Dodd-Frank.

The FSOC process consists of three steps. It is based on an analytical framework derived from 10 criteria in Dodd-Frank for determining systemic relevance. These are grouped into six drivers (size, interconnectedness, substitutability, leverage, liquidity risk and maturity mismatch, existing regulatory scrutiny) taken to be key in whether or not the company's failure or activities could cause systemic problems via contagion and losses for other market participants or via disruption to a critical function of market-wide importance.

The first step catalogues any non-bank company fulfilling the 85% criteria which has \$50bn in consolidated assets and which meets one of five other quantitative thresholds (\$30bn outstanding credit default swaps, \$3.5 of derivative liabilities, \$20bn debt outstanding, 15 to 1 leverage ratio, and a 10% ratio of short-term (1 year) debt to total assets). The FSOC can always include a company from outside these criteria as well, if it considers further analysis to be necessary. For now, it anticipates that fewer than 50 companies will be considered in step 1.

The second step involves a targeted company-by-company analysis of this subset. The data used will consist primarily of information in the public domain and obtained from other regulatory authorities.

Step three consists of the notification process with regard to a given company which is considered to merit in-depth review. It will have to provide any information requested by the FSOC, which will establish whether the company's failure or risk profile is such as to require final designation as systemically relevant. At the conclusion of stage 3 the FSOC may, by a two thirds majority, make a proposed determination regarding the company. The company can request a hearing to contest this, after which another vote is taken again requiring a two thirds majority. There is also the possibility of judicial review.

¹⁰⁵ <http://www.treasury.gov/initiatives/fsoc/Documents/Nonbank%20Designations%20-%20Final%20Rule%20and%20Guidance.pdf>;
<http://www.federalreserve.gov/newsevents/press/bcreg/bcreg20130403a.pdf>

In July 2013, the FSOC designated the following two nonbank companies as systemic: American International Group, Inc. and General Electric Capital Corporation, Inc. In September 2013, it designated Prudential Financial, Inc. as systemic. In December 2014, it designated MetLife, Inc. as systemic. In June 2016 the FSOC rescinded General Electric Capital Corporation's designation as systemically important financial institution.

Financial market utilities (clearing, payment, and settlement infrastructures)

Financial market utilities (FMUs), comprising companies engaged in payment, clearing, or settlement activities, are considered and designated by the FSOC separately¹⁰⁶. The main decisive factors are the aggregate monetary value of transactions processed by the FMU, the aggregate exposure to its counterparties, the effect that its failure or disruption would have, and the relationship, interdependencies, or other interactions with other FMUs.

The designation process in relation to FMUs consists of two steps. First, the FSOC makes a preliminary determination of FMUs whose failure or disruption could, based on the above factors, potentially increase the risk of significant liquidity and credit problems in financial markets and thereby threaten financial stability. Second, those identified are subject to further review, with more focus on qualitative factors. The final determination requires a two thirds majority within FSOC.

Like with the other nonbank companies, if the FSOC determines any FMU to be systemic, it becomes subject to higher regulatory and prudential standards by its primary regulator (usually either the CFTC or SEC) and by the Federal Reserve. This includes enforcement powers such as issuing cease and desist orders and removing personnel responsible for bad practices. Even though Dodd-Frank doesn't explicitly subject FMUs to resolution or orderly liquidation under Dodd-Frank, it is understood that the FDIC would have jurisdiction in this case.

In July 2012, the FSOC designated the following eight FMUs as systemic: The Clearing House Payments Company L.L.C., CLS Bank International, Chicago mercantile Exchange, Inc., The Depository Trust Company, Fixed Income Clearing Corporation, ICE Clear Credit LLC, National Securities Clearing Corporation, and The Options Clearing Corporation.

¹⁰⁶ <http://www.treasury.gov/initiatives/Documents/Finalruledisclaimer7-18-2011.pdf>

ANNEX V – THE BENEFITS AND CONSEQUENCES OF CCP CLEARING

CCPs can contribute to the stability of the financial system by reducing the disruptions associated with the replacement of defaulted positions. For example, in contrast to typical futures or exchange-traded options positions, OTC derivatives portfolios often include positions accumulated and held over extended time periods. Thus, the magnitude of the positions that must be replaced or hedged in a short period following a default is likely to be very large relative to normal order flows. They could have notional values in the trillions of dollars.

CCPs can reduce price volatility and the incidence of extreme price moves that can occur when a large trading firm defaults. CCPs can mitigate the destabilising effects of the replacement of defaulted positions by: (a) reducing (via position netting) the magnitude of positions that need to be replaced; (b) transferring customer trades to solvent CCP members; and (c) coordinating the orderly replacement of defaulted trades through auctions and orderly hedging of exposures created by defaults. These measures can reduce the knock-on price movements that result from a large default or defaults precipitated by an asset price shock.

(a) Position netting

Multilateral netting allows members and participants to collate numerous sales and purchases of the same asset into a single net obligation to settle against the CCP, instead of many obligations to settle against many different trading parties. CCPs can thus help to increase liquidity in a market.

(b) Transfer of clearing member positions

CCP rules facilitate the portability of positions held in accounts at a troubled CCP clearing member(s) to financially sound members. This reduces the likelihood that a defaulting clearing member's clients will lose out as result of a clearing member default, reducing the risk that the client's margin will be encumbered by the bankruptcy process, and facilitates the ability of client to trade unhindered by the default of their clearing member. Furthermore, a well-managed centralised auction mechanism can be more liquid, and result in smaller price disruptions, than uncoordinated replacement of positions during periods of pronounced uncertainty. By reducing the concentration of default exposures and allocating default losses more efficiently, CCPs can mitigate and sometimes eliminate the potential for cascading defaults.

(c) Coordinated replacement

Central clearing is subject to strong economies of scale and scope arising from netting economies and diversification effects, favouring the use of a small number of large CCPs. The creation of multiple CCPs can lead to fragmentation which results in incomplete realisation of the economies of scale and scope. If the same product is cleared in CCPs in multiple jurisdictions, some position netting opportunities will be foregone, thereby reducing the efficiency of capital utilisation and increasing the costs and risks of position replacement in the event of default. Clearing of different products at different CCPs results in the loss of some close-out netting possibilities, and efficiencies from portfolio margining.

Clearing of the same product in multiple CCPs can also fragment liquidity. Without interoperability of CCPs, counterparties to a trade would have to agree on which CCP to use. Some may be unwilling or unable to agree, thereby reducing the potential number of

counterparties and liquidity. This problem can be mitigated to the extent that market participants (or their brokers) make arrangements to clear at multiple CCPs, but this increases costs and operational burdens. Similarly, firms can clear through firms that are members of multiple CCPs. Maintaining multiple memberships imposes additional costs and operational challenges on the intermediaries. Moreover, this means of facilitating connections of end users to multiple CCPs tends to encourage the concentration of client business in a small number of clearing member firms. This concentration has systemic implications. Interoperability between CCPs clearing the same product can mitigate these problems, but this exposes each CCP to the credit risk of those with which it interoperates.

This tendency towards the dominance of clearing by a small number of large CCPs (and clearing members) makes these entities highly systemically important. But impeding consolidation would prevent CCPs from realising all of the risk-reducing benefits of scale and scope. At the same time, the financial resources of CCPs are not unlimited and sufficiently severe defaults (especially, multiple defaults) could threaten their solvency.

ANNEX VI – DATA ON EUROPEAN CCPs AND RECENT TRENDS IN THE INCREASE IN OTC CLEARING

A: Cash markets

Main CCPs—Cash Markets¹⁰⁷		
System	Description	Statistics (value of cash securities transactions, 2011)
CC&G	CCP clearing for the Italian markets.	€3 trillion
CCP Austria	CCP for Austrian cash and derivative markets	€0.08 trillion (in 2010)
EUREX Clearing	CCP incorporated in Germany, offering clearing services for derivatives and equities traded on German markets.	€3 trillion
LCH.Clearnet Limited	Part of the LCH.Clearnet group. Clears equities and derivatives for various platforms, including the London Stock Exchange. Swapclear is part of LCH.Clearnet Limited and is the largest CCP for interest rate swaps globally.	€4 trillion (in 2009)
LCH.Clearnet SA	Part of the LCH.Clearnet group. Clears equities and derivatives for the Euronext markets in Belgium, France, the Netherlands and Portugal; government bonds for MTS Italy; equity for Bourse de Luxembourg bonds and several electronic trading platforms	€6 trillion
EuroCCP	CCP incorporated in the U.K.; clearing in 17 other markets in Europe and the US.	NA
European Multilateral Clearing Facility (EMCF)	CCP incorporated in the Netherlands; clearing for 19 European markets through nine different exchanges and trading platforms.	€6 trillion
KELER CCP	CCP for Hungarian market	NA

¹⁰⁷ Source ECB. N.B. In April 2014 the merger of EuroCCP and EMCF was completed.

B: EU CCPs offering clearing of OTC derivatives¹⁰⁸

Asset Class	CCPs	Location
Interest rate	CME Clearing Europe	UK
	Eurex Clearing	Germany
	KDPW CCP	Poland
	LCH.Clearnet Ltd.	UK
	Nasdaq OMX Stockholm	Sweden
Credit	Eurex Clearing	Germany
	ICE Clear Europe	UK
	LCH.Clearnet SA	France
Equity	Holland Clearing House	The Netherlands
	MEFF	Spain
	Nasdaq OMX Stockholm	Sweden
Commodities	CME Clearing Europe	UK
	European Commodity Clearing	Germany
	ICE Clear Europe	UK
	LCH.Clearnet Ltd.	UK
	MEFF	Spain
	Nasdaq OMX Stockholm	Sweden
	OMI Clear	Portugal
Foreign Exchange	LCH.Clearnet Ltd.	UK

C. Ownership models¹⁰⁹

	User-owned	Non-user-owned	Hybrid
Australia		Yes	
Belgium*			Yes
Canada	Yes	Yes	
France			Yes
Germany		Yes	
Hong Kong SAR		Yes	
India	Yes	Yes	Yes
Italy		Yes	

¹⁰⁸ Source: OTC Derivatives Market Reforms, Seventh Progress Report on Implementation, Financial Stability Board, April 2014

¹⁰⁹ Source: www.bis.org

Japan	Yes	Yes	Yes
Netherlands*		Yes	Yes
Russia	Yes	Yes	
Sweden		Yes	
Switzerland	Yes		
United Kingdom	Yes	Yes	Yes
United States	Yes	Yes	

D. Recent trends in the increase of clearing of OTC derivatives

It has been estimated that between 30% and 70% of OTC derivatives may be sufficiently standardised and liquid for central clearing, depending on the product class (interest rate swaps, credit default swaps, and other OTC derivatives).¹¹⁰ In June 2013, the global notional amount of outstanding OTC derivatives was estimated at USD 693 trillion.¹¹¹ At end-June 2013, it was estimated that around 65% of OTC interest rate derivatives and 40% of OTC credit derivatives transactions were being centrally cleared, up respectively from 40% and 25% at the start of 2013.¹¹² In terms of notional amounts, without adjusting for double counting arising from novation, it was estimated that the volume of cleared OTC transactions at the end of 2012 totalled USD 346.4 trillion, of which USD 341.4 trillion was attributable to interest rate derivatives and USD 5 trillion to credit default swaps (CDSs). In February 2014, adjusting for double counting the global volume of cleared derivatives transactions was estimated to be around USD 191 trillion (mostly interest rate swaps) or approximately 46%¹¹³ of all derivatives trades. In February 2014, public figures from the US Commodity Futures Trading Commission indicate that 70% of new single currency interest rate derivatives and 95% of new credit derivative indices trades are centrally cleared¹¹⁴. Estimates of how increased CCP clearing of OTC derivatives will increase the demand for collateral vary from EUR 0.1 to 0.6 trillion¹¹⁵ to EUR 2.0 to 4.0 trillion^{116 117}.

¹¹⁰ IMF, Global Financial Stability Report (Chapter 3, April 2010); Non-Cleared OTC Derivatives: Their Importance to the Global Economy, March 2013, ISDA.

¹¹¹ Semi-annual OTC derivatives statistics, Bank of International Settlement (June 2013) <http://www.bis.org/statistics/dt1920a.pdf>

¹¹² OTC derivatives markets reforms – sixth progress report on implementation, Financial Stability Board, September 2013, based on figures from the US Depository Trust & Clearing Corporation.

¹¹³ OTC derivatives markets reforms – seventh progress report on implementation, Financial Stability Board, April 2014. These are notional figures which do not reflect the actual scale of risk exposures. Measuring for market value and taking account of collateral and netting reduces the amount to some 0.3-0.5% of the notional amount. See ISDA OTC derivatives market analysis, year-end 2012 (June 2013) <http://www2.isda.org/functional-areas/research/studies/>

¹¹⁴ OTC derivatives markets reforms – seventh progress report on implementation, Financial Stability Board, April 2014.

¹¹⁵ Bank of England Financial Stability Report, June 2013 (p.50-51) <http://www.bankofengland.co.uk/publications/Documents/fsr/2013/fsrfull1306.pdf>. According to estimates by ESMA, the supply of high quality collateral was around EUR 12.2tn as of 2012, the bulk of which consisted of sovereign bonds. The demand for collateral is around EUR 4.1tn, mainly for repo operations, exchange-traded and OTC derivatives and securities lending.

¹¹⁶ "Towards a new collateral landscape," Speech by Yves Mersch, Member of the Executive Board of the ECB, at the 2nd Joint Central Bank Seminar on Collateral and Liquidity hosted by the ECB and the Deutsche Bundesbank, 17 September 2014 <http://www.ecb.europa.eu/press/key/date/2014/html/sp140917.en.html>

E. Membership of global systemically important banks of leading global CCPs (compiled by the FSB)

	AUS	BRA	CAN		FRA	DEU	HKG	IND			ITA	JPN	MEX	RUS	SGP	ZAF	SWE	CHE	GBR				USA					
	ASX ¹	BMSF Bovespa	TMX ²	ICE Clear Canada	LOH Clearnet SA	Eurex	HKEX ³	COIL	ICL	NSCOL ⁴	CC&G	JSCC	Asigna	NCC	SGX ⁵	JSE	NASDAQ OMX	Six-X	CME Clearing Europe	ICE Clear Europe	LOH Clearnet Ltd	LME Clear	CME	Clearing Corp	DTC ⁶	ICE Clear ⁷	LOH Clearnet LTC	OCC
Bank of America	X		X		X	X	X	X		X	X				X	X	X	X			X	X	X	X	X		X	
Bank of China					X	X																						
Bank of New York Mellon					X	X	X	X		X	X				X	X	X	X										
Barclays	X	X			X	X	X	X		X	X				X	X	X	X										X
BBVA					X	X				X	X				X	X	X	X										X
BNP Paribas	X		X		X	X	X	X		X	X				X	X	X	X										X
Citigroup	X	X	X		X	X	X	X	X	X	X				X	X	X	X										X
Credit Suisse	X	X	X		X	X	X	X	X	X	X				X	X	X	X										X
Deutsche Bank	X	X	X		X	X	X	X	X	X	X				X	X	X	X										X
Goldman Sachs	X		X		X	X	X	X	X	X	X				X	X	X	X										X
Group Crédit Agricole					X	X	X	X		X	X				X	X	X	X										X
Group BPOE					X	X	X	X	X	X	X				X	X	X	X										X
HSBC	X	X	X		X	X	X	X	X	X	X				X	X	X	X										X
ICBC																												X
ING					X	X	X	X		X	X				X	X	X	X										X
JP Morgan Chase	X	X	X		X	X	X	X	X	X	X				X	X	X	X										X
Mitsubishi UFJ FG					X	X	X	X		X	X				X	X	X	X										X
Mizuho FG					X	X	X	X		X	X				X	X	X	X										X
Morgan Stanley	X				X	X	X	X		X	X				X	X	X	X										X
Nordea					X	X				X	X				X	X	X	X										X
RBS					X	X	X	X		X	X				X	X	X	X										X
Santander					X	X	X	X		X	X				X	X	X	X										X
Société Générale	X		X		X	X	X	X		X	X				X	X	X	X										X
Standard Chartered															X	X	X	X										X
State Street						X	X	X	X																			X
Sumitomo Mitsui FG							X																					X
UBS	X		X		X	X	X			X	X				X	X	X	X										X
Unicredit Group					X	X				X	X				X	X	X	X										X
Wells Fargo										X	X				X	X	X	X										X

Information collected from CCP websites, with G-SIBs memberships identified largely through obvious entity names. Detailed information on all G-SIB group affiliates with CCP memberships not known. Includes CCPs based in FSB member jurisdictions (including wider EU) that are members of the global industry group CCP12. Clearing members of Merval (Argentina), Shanghai Clearing House (China) and KRX (Korea) were unable to be identified from public information.

¹ Includes ASX Clear and ASX Clear (Futures) ² Includes CDCC and CDS ³ Includes HKCC, HKSCC and SECOH ⁴ Only partial information available ⁵ Includes SGX CDP and SGX Derivatives Clearing ⁶ Includes FICC and NSCC ⁷ Includes ICE Clear Credit and ICE Clear US

ANNEX VII – COMPETITION AND CCP INTEROPERABILITY

The Commission has been taking steps to enhance competition in European post-trade services and remove barriers to efficiency. Freedom to provide cross-border services and competition among multiple CCPs has been enshrined in EMIR. To consolidate this, provisions for CCPs' to have non-discriminatory access to exchange trade data feeds are included in the Markets in Financial Instruments Regulation (MiFIR).¹¹⁸

EMIR also provides for interoperability between CCPs. Interoperability provides trading firms with the full ability to select a CCP of their choice rather than be limited to the choice made available by the trading venue, and to derive netting benefits and minimise the frictional costs of clearing.¹¹⁹ Overall, competition and interoperability between CCPs should contribute to deepen and further integrate European capital markets and increase liquidity.

The ability for trading firms to choose among multiple CCPs has increased since 2007, aided by the entry into force of MiFID. Interoperability between some CCPs has become a reality since 2011. In 2012, trading venues such as regulated markets and multilateral trading facilities representing approximately 65% of European trading volume by numbers of transactions have given access to their trade feeds to at least one of the interoperating CCPs. Meanwhile, traders have demonstrated considerable interest in consolidating their trade flow through a CCP of their choice.

Commercial interests continue to be the primary obstacle to developing competition and interoperability for clearing across all trading venues. A trading venue that owns or has financial control over a CCP has little immediate incentive to let a third-party CCP share in its clearing revenues unless trading firms put significant pressure on this venue to demand access or interoperability and put the venue at risk of seeing liquidity shift away to a competing trading venue. A CCP may also be reluctant to trust another CCP's risk management to the full degree.

Furthermore, structuring an interoperability agreement across jurisdictional lines can be complex, not least due to differences in bankruptcy law (and its treatment of collateral). Interoperability requires close coordination between CCPs, particularly in a crisis: a CCP interconnection is an essential linkage that can fail. Coordination of the respective regulatory authorities can also be difficult if there are substantive differences across legal and regulatory regimes.

These difficulties make it challenging to create robust competition and interoperability arrangements. Clearing could thus remain fragmented across products, and between Member States. This fragmentation would tend to keep the costs of clearing high, as well as to reduce market liquidity.

¹¹⁸ http://ec.europa.eu/internal_market/securities/isd/mifid2/index_en.htm

¹¹⁹ Users are able to most freely choose a CCP when there is full interoperability: that is, a trading venue gives its trade feed to a CCP that wants to clear its trades, and the incumbent CCP(s) interoperates with a newcomer. If either condition is not fulfilled, users do not have free choice because which CCP is made available to them is determined by the trading venue and the incumbent CCP(s).

ANNEX VIII – HOW A CCP COULD FAIL

A CCP may enter into financial distress as a result of clearing member(s) default (default events) or due to operational reasons such as losses on the CCP's investments (other (non-default) events) or a combination of the two.

Default event – the CCP, based on its internal rules designates more than one significant clearing member as being in default

Notwithstanding the provisions of the BRRD safeguarding their functioning, a CCP default could follow the default of one or, more likely, several clearing members. A clearing member could be designated as being in default either because it is insolvent or because it is insufficiently liquid to meet a margin (or delivery) settlement obligations. If the defaulter's margin with the CCP is insufficient to cover its obligations due, *inter alia*, to possible mispricing by the CCP, the CCP would have to call upon the other EMIR financial resources, including its equity and default fund and it may further call on additional capital or cash contributions by its remaining members.¹²⁰ If all of these resources are exhausted as a result of the member default(s), the CCP would default on its obligations to other members and their clients.

Other (non-default) events – arising from:

- *Lack of liquidity*

A CCP could also default due to a lack of liquidity. For instance, in the event of a member default, the CCP is obligated to make a timely payment to those owed variation margin payments. This will require the CCP to liquidate the defaulter's collateral, and perhaps some of its own assets. The CCP may also attempt to borrow to meet its obligations. If such collateral sales and borrowings occur during stressed market conditions (which is when a large member default is most likely), the CCP may be unable to raise sufficient funds to meet its obligations in the short time available to do so. This uncertainty could compel members and their clients to close out (crystallise and terminate) contracts, rein in trades and could cause markets to seize up.

CCPs could also lack liquidity to undertake its normal business due to, for example, significant cyber-attacks or fraud, whereby these events could wipe out a CCPs operational and business capital.

- *Vulnerability to market movements*

The nature of CCPs makes them most vulnerable to default at the times when they are most needed as a systemic shock-absorber. In particular, they are susceptible to wrong-way risk, in which the financial condition of the CCP is weakest at the time its financial obligations are greatest. Wrong-way risk tends to be largest for the most senior component of payment 'waterfalls' and highly rated counterparties. These features are characteristic of CCPs. Entities with these characteristics seldom fail, but their failure

¹²⁰ How margin is collected can also play a role. Margin can be posted by granting a security interest or under a title transfer agreement; CCPs can collect margin on a net or gross basis; it can be posted in the form of securities or cash; it can be held by a clearing member, the CCP or a third party custodian; it can be segregated from or co-mingled with other assets; it can be subject to liens or setoff rights; and can be subject to re-hypothecation. For example, segregation of margin affects the risk that customers will lose some or all of their collateral in the event of a default. Higher segregation is more costly and can facilitate portability. But it can decrease users' incentives to monitor the risks of the CCP and their clearing member.

tends to occur concurrently with large asset price movements, whereby they are overwhelmed by extraordinary market movements and can themselves exacerbate market crises.

- *Losses related to CCP investments*

A CCP could conceivably fail due to its own investment practices. In many European countries, collateral passes by title transfer agreement (i.e. the CCP receives the income from investing collateral and has the authority to invest collateral). As a result, the trader responsible for investing this collateral may engage in excessively risky investments to earn a high profit. A CCP should rely on its own equity capital or insurance (as opposed to the default fund) to cover any loss incurred by such activity. CCPs can reduce their vulnerability by abiding by regulatory requirements and establishing restrictive policies regarding permissible investments, but the possibility of overwhelming losses cannot be discounted.

ANNEX IX – CCP FINANCIAL RESOURCES “WATERFALL” AND INCENTIVES

The following is available to the CCP should one or more clearing member be designated as being in default in accordance to the CCP's internal rules.

- *Defaulter's contribution*

CCPs conventionally rely on a “waterfall” of financial resources to absorb the default of their member firms. The first element of this waterfall is the defaulter's margin. The second element is the defaulter's contribution to the CCP default fund (or its equivalent). In a pure defaulter pays model, these elements would always be sufficient to cover the obligations of defaulting firms, but it is inefficient to impose margin or default fund contributions that would cover exposures at default under all eventualities because of the opportunity costs this would entail.

- *Other resources*

Once the resources contributed by a defaulter are exhausted, CCPs can utilise other resources to mutualise the loss. One source can be its own equity and/or the default fund contributions of non-defaulting members. If default losses exceed even this element of the waterfall, CCPs typically have the right to ask non-defaulting members to make additional contributions. These additional “rights of assessment” are commonly limited to a firm's initial contribution to the default fund. Under some circumstances, CCPs may utilise the margins of non-defaulting customers of a defaulting clearing member firm to satisfy the obligations of any client of a defaulting clearing member – specifically, if client funds are held on an omnibus basis. However, this is not an option under EMIR and therefore is not available to EU CCPs.

Outside the EU, CCPs could order the various elements of the waterfall in a variety of ways.¹²¹ Ordering affects the incidence of loss and its magnitude via the effect on incentives. For instance, putting CCP capital at risk at the first stage of the waterfall (after the defaulter's resources) provides the CCP with a strong incentive to control risk, monitor its members and choose prudent margin levels (this is the order established under EMIR). It is however considered to be inefficient to require the CCP to have pre-financed funds to absorb an arbitrary number of member defaults. A better alternative is to require CCPs to have a funding mechanism that is activated in the aftermath of the first default and of every subsequent member failure. Pre-committed conditional funds would reduce the likelihood of a ‘run’ provided those who have committed to provide additional financing are widely believed to be able to perform on those obligations. This would likely imply obtaining these commitments from financial entities that are not participants in the CCP, such as insurance companies or unlevered real money investors.

The nature of CCPs' default resources entails some challenges for policy-makers, CCPs and clearing members. While on the one hand, higher limits on the amount of funds CCPs can call from clearing members increases their ability to withstand defaults, on the other hand, higher limits increase the possibility of contagion as the non-defaulting clearing members might have to cover significant losses that can result from large clearing member defaults. This would largely defeat the intent of clearing mandates, which is to limit the exposure of financial firms to counterparty risk. Furthermore,

¹²¹ For a discussion on the relative merits of different ways to balance initial margins and default funds to mitigate or mutualise losses, see “Central Counterparties and their financial resources – a numerical approach,” Bank of England Financial Stability Paper No. 19 (April 2013) http://www.bankofengland.co.uk/publications/Pages/fsr/fs_paper19.aspx

concerns about uncertain clearing member exposure to CCP cash calls can increase the likelihood of 'runs' on members. Due to these considerations, the ability of CCPs to make large, unlimited cash calls can induce the structuring of clearing members in ways that limits the amount of cash that a CCP can request.

ANNEX X – FAILURES AND NEAR-FAILURES OF CCPs¹²²

Central counterparty (CCP) failures have been extremely rare—there have been only three going back to 1974. There are additional instances of close calls or near failures. This annex reviews the circumstances behind the three failures as well as two near misses.

CCP failures

- The *Caisse de Liquidation* clearing house in Paris was closed in 1974 as a result of unmet margin calls by one large trading firm after a sharp drop in sugar prices on the futures exchange. One of the primary causes of the failure was that the clearing house did not increase margin requirements in response to greater market volatility. Also, although it lacked the authority to order exposure reductions, the clearing house should have informed the exchange (which had the authority) of the large size of the exposure of Nataf Trading House. The problem was further aggravated when the clearing house used questionable prices and non-transparent methods to allocate losses among clearing members, leading to considerable legal disputes (which included a decision by a court of appeal to reverse this judgement and the refusal of two of Nataf's guarantors to cover the sums they were deemed to owe). This closed the sugar market remained closed for two years, leading to significant disruption.
- The *Kuala Lumpur Commodity Clearing House* in Malaysia was closed in 1983 as a result of unmet margin calls after a crash in palm oil futures prices on the Kuala Lumpur Commodity Exchange. Six large brokers, who had accumulated positions worth USD 70 million, defaulted as a result of the large losses that were generated by the price collapse. Again, the clearing house did not sufficiently increase margin requirements in response to greater market volatility. Furthermore, there was a coordination breakdown between the clearing house and the exchange, which did not exercise its emergency powers to suspend trading. Also, careless trade confirmation and registration resulted in long delays in ascertaining who owed what to whom.
- The *Hong Kong Guarantee Corporation* was closed for four days and had to be bailed out by the government in 1987 as a result of fears of unmet margin calls on purchased equity futures positions following the October stock market crash. Adding to the problem was that many of the sold equity futures positions were being used to hedge purchases of stocks, so that a failure on the futures contract would likely require additional selling pressure by those holding the stocks themselves. Yet again, margin was not raised in amounts commensurate with rising volatility, plus many brokers were not diligently collecting margin from their customers. Also, there was a lack of coordination between those monitoring the market and those providing the guarantees due to the separation of ownership of the exchange, the clearing house, and the contract guarantee fund. In addition, there were no position limits and market risk became concentrated in a few brokers and customers (five of 102 brokers accounted for 80 per cent of open sold contracts).

Near-Failures

¹²² Regarding CCPs, this annex is taken and shortened from the IMF Global Financial Stability Report: Meeting New Challenges to Stability and Building a Safer System (April 2010), Chapter 3, Making Over-The-Counter Derivatives Safer: The Role of Central Counter Parties, Box 3.5: History of Central Counterparty Failures and Near Failures; <http://www.imf.org/external/pubs/ft/gfsr/2010/01/>

Also in the wake of the October 1987 crash, both the *Chicago Mercantile Exchange (CME)* and the *Options Clearing Corporation (OCC)* encountered severe difficulties in receiving margin. In the case of the CME, failure was averted when its bank, Continental Illinois, advanced the clearing house \$400 million just minutes prior to the opening bell in order to complete all the \$2.5 billion in necessary variation margin payments. These included a \$1 billion payment from a major broker-dealer that had remained outstanding despite assurances from its executive management of its ultimate arrival. Although the crisis was averted, the CME realized that clearing members retained too much discretion over the timely payment of margin and thus adopted a policy of automated payments from clearing members.

At the same time, similar problems occurred in clearing equity options trades on the Chicago Board Options Exchange. A large clearing member at the OCC had difficulties meeting its margin calls and required an emergency loan from its bank in order to avoid non-compliance. The OCC was also plagued by some operational problems, including the lack of an automatic payment system, and the OCC was late in making payments to its CMs. Also, the OCC and CME did not have joint or linked clearing arrangements, so traders who hedged options with futures on the CME experienced delays in transferring gains realized at one clearing house to cover losses at another.

ANNEX XI – NUMERICAL EXAMPLES OF LOSS-ALLOCATION TOOLS AND STAKEHOLDER POSITIONS

A) Numerical examples of loss-allocation tools¹²³

The following example provides an illustration of how losses may be allocated by the application of each of four mechanisms: cash call; variation margin haircutting; complete tear-up of outstanding transactions; and selective tear-up¹²⁴. In practice, loss-allocation rules can involve more than one of these mechanisms in combination.

Consider a CCP clearing cash-settled futures in product x and product y. For simplicity, we assume that initial margin and default fund are of value zero. Suppose the members' open positions at the time of default are as shown in the table below:

Member	Position	Change in mark-to-market mid-price valuation since default
A (defaulter)	-1 product x	-€2
B	-2 product y	-€6
C	+1 product x	+€2
D	+ 2 product y	+€6

The change in mark-to-market mid-price valuation is used to calculate variation margin obligations. So the CCP is due to pay €8 in variation margin (€2 to Member C and €6 to Member D).

Subsequent to calculating variation margin obligations, the CCP holds an auction to dispose of Member A's positions and return to a matched book. Suppose that the price, established in auction, at which members will take on Member A's positions is -€4 (i.e. the CCP must pay €4 to a member in order for that member to take on a position of -1 product x). This means that the CCP must pay out an additional €4 in order to return to a matched book. Note that the auction price of -€4 is at a premium to the mark-to-market mid-price valuation of -€2 used to calculate variation margin obligations.

So in total, the CCP is due to pay out €12 (€8 + €4). Meanwhile, the CCP is due to receive €6 in variation margin from Member B. Of course, Member A is unable to meet its payment obligation to the CCP as it has defaulted. The CCP cannot meet these obligations in full and has a shortfall of €6 (€12 – €6).

The four mechanisms cover the shortfall in different ways and have different distributional effects.

Cash call

The CCP maintains solvency by requiring its members to pay it cash amounts which are in aggregate equal to the shortfall of €6. A cash call offers the greatest degree of flexibility in the way that losses are allocated. The amount that a particular individual member is required to pay to the CCP depends on the details of the rule but could, for

¹²⁴ This is a stylised example for illustrative purposes only and does not refer to the resources or procedures of any specific CCPs.

example, be proportional to that member's initial margin requirement or default fund contribution at the point of Member A's default.

Variation margin haircutting

Under a variation margin haircutting loss-allocation rule, the CCP could haircut €8 that it is due to pay in variation margin. After the CCP has paid the €4 necessary to return to a matched book, it has €2 remaining of the €6 that it has received in variation margin. So the haircut on the variation margin that it owes is 75% ($1 - 2/8$), and if applied pro rata the CCP pays €0.5 to Member C and €1.5 to Member D.

Complete tear-up

Now suppose that the auction establishes a more extreme price at which members will take on Member A's positions of -€10 (i.e. the CCP must pay €10 to a member in order for that member to take on a position of -1 product x). Thus the CCP must pay out €10 in order to return to a matched book. So in total, the CCP is due to pay out €18 (€8 + €10).

The CCP cannot meet these obligations in full, and cannot pay the auction price of €10 even with a 100% variation margin haircut (we assume that the CCP does not haircut the auction price). So the CCP tears up all open contracts at their mark-to-market mid-price valuations: it terminates all open contracts and is due to receive €6 from Member B, pay €2 to Member C and pay €6 to Member D. Since the payments due from the CCP (€8) exceed the payments due to the CCP (€6), the payments from the CCP are haircut by 25%, i.e. the CCP pays €1.5 to Member C and €4.5 to Member D.

In this example the haircut imposed by the CCP is smaller under complete tear-up than under variation margin haircutting. The reason for this is that in the case of complete tear-up, the CCP does not pay the auction premium. But after the complete tear-up, the members' positions in product x and product y are no longer open; if the members wish to re-establish these positions they will need to enter new trades to do so. So under complete tear-up, members' potential losses from replacing their torn-up positions in the market are uncapped, and may be significant. Replacing the contracts may also entail operational costs and risks that a variation margin haircutting solution would avoid.

Selective tear-up

Faced with the same extreme price established in the auction of -€10, rather than tearing up all open contracts, the CCP tears up the smallest subset of contracts that will return it to a matched book: it tears up Member C's positions in +1 product x at its mark-to-market mid-price valuation.

As before, the CCP is due to receive €6 from Member B, pay €2 to Member C and pay €6 to Member D. Since the payments due from the CCP (€8) exceed the payments due to the CCP (€6), the payments from the CCP must be haircut.

The CCP could haircut the tear-up price and variation margin equally, i.e. a 25% haircut so that the CCP pays €1.5 to Member C and €4.5 to Member D (this differs from complete tear-up in that Member D's positions are not terminated).

Alternatively, the CCP could compensate Member C for the cost of replacing its positions, and fund this compensation by making the variation margin haircut greater than 25%. For example, the CCP could increase the variation margin haircut to 33% and pay €2 to Member C and €4 to Member D.

B) Table summarising CCP stakeholder impacts and corresponding preferences¹²⁵

	FSB - CPSS/IOSCO	CCPs	Clients	Clearing members	EP
Principal objective	Continuity in recovery; resolution if necessary. Maintaining critical services; ensuring financial stability.	Continuity in recovery; resolution if necessary. Return to viability through own actions	Legal and operational certainty; avoid that clients are affected economically. No prolonged recovery; swift wind-down in resolution	Continuity in recovery; resolution if necessary. Legal and operational certainty; and continual access to critical services.	Continuity in recovery; resolution if necessary. Maintaining critical services; and ensuring financial stability.
Recovery	Comprehensive and effective recovery plans, activated upon exhaustion of default management process or before if necessary	Upon exhaustion of default management process. Apply pre-defined recovery plan with a degree of flexibility to deploy the most appropriate tools for prevailing circumstances	Should not seek recovery and continuity; default management is already recovery. Achieve certainty swiftly; no margin haircutting (for profit CCPs should not be bailed out by clients)	As final step in default management. Return to viability with least interventionist measures; loss allocation tools should be transparent, controllable, measurable and manageable	Comprehensive and substantive recovery plans, esp. for products under mandatory clearing, reviewed by authorities; authorities should be able to request changes; protect clients.
Resolution	After exhaustion of recovery process, or when recovery measures would be insufficient or damage financial stability	After exhaustion of recovery process	After exhaustion of default management	After exhaustion of recovery process e.g. when auction within default management fails	After exhaustion of recovery process
Loss allocation tools <i>- Cash calls</i>	CPSS/IOSCO: Yes;	Yes	Yes	Yes, but limited cash	Yes

¹²⁵ This table is a simplification of stakeholder views to further illustrate the narrative in sections 6.5-6.6 and in this annex. It is not a comprehensive representation of input received.

	FSB: in resolution only in the form of implementing non-exhausted recovery tools	Yes, without compensation	Not in recovery, only in resolution	calls	Not in recovery, only in resolution, protect clients to the extent possible.
- <i>Variation margin haircut (VMH)</i>	Yes	Yes,	Not in recovery, only in resolution	Yes, as last step in recovery and with possible compensation (shares in CCP or claim on defaulter's estate)	Not in recovery, only in resolution, protect clients to the extent possible.
- <i>Initial margin haircut (IMH)</i>	Where legally permitted or not insolvency-remote	No	No	No	n/a
- <i>Tear-up</i>	Yes	Yes. Both temporary and partial & complete	Yes. Rapid liquidation of all positions	Yes. Only complete tear-up within affected product if VMH is insufficient; partial only if voluntary so as to not split up netting sets	n/a
- <i>Forced allocation</i>	Yes, in resolution only and aligned with the form of implementing non-exhausted recovery tools in the first instances, where possible	Yes	n/a	No, so as not to disrupt netting sets	n/a
- <i>More skin-in-the-game, bail-in</i>	Possibly, notably in non-default scenario	No	Yes	Yes, especially but not only in non-default scenario	Yes, in non-default scenario
Other tools					

	Yes	Unlikely to work	Unrealistic	Yes, but difficult	Yes
- <i>Transfer to third party</i>					
- <i>Moratorium on payments due by the FMI to participants/linked FMIs</i>	Only if it doesn't affect core functions	Counter-productive	No	No	n/a
- <i>Stay on the exercise of early termination rights</i>	Yes, subject to certain conditions	Counter-productive	Yes	As last resort	Yes
- <i>Enforce outstanding contracts</i>	Yes	Yes	Yes	Yes	Yes
No worse-off creditor	Based on full application of CCP loss allocation rules	Responsibility of authority	Responsibility of authority. No use of segregated client funds; VMH in recovery pre-empts insolvency.	Based on full application of CCP loss allocation rules. No geographic discrimination. Possible compensation through equity or other asset in resolved CCP.	n/a

1) Choice of legal instrument

In order to achieve the objectives, it is necessary to assess the best options to ensure that CCPs are equipped with adequate recovery tools that efficiently address extreme events exceeding their existing risk management framework. This includes tools that can be used to mitigate extreme credit risks that exceed their default waterfall as set out in EMIR. This also includes appropriate tools to address extreme business, operational, investment or liquidity risks.

It is also necessary to assess how necessary resolution powers would best be conferred on a public authority to ensure the required speed of action in case of CCP failure, and for example to either implement recovery tools that have not been implemented yet by the CCP or to implement other appropriate tools.

1. Adoption of soft law instruments or self-regulation by CCPs.
2. Application of the bank recovery and resolution directive to CCPs.
3. Development of a specific legal regime applicable to CCPs, covering recovery, early intervention and resolution based on international standards.

Adoption of soft-law instruments or self-regulation by CCPs

This option would entail the adoption of specific non-binding industry standards to be implemented on a voluntary basis by CCPs, or the adoption of an EU Communication or Recommendation on recovery and resolution of CCPs. This option would be very flexible and allow the necessary arrangements to be designed to a large degree by mutual consent of CCP-users. However, it may not provide for sufficient legal certainty and decisive tools to ensure the efficient recovery and resolution in all circumstances. As recovery and resolution tools are implemented in an insolvency or near-insolvency context, ensuring the enforceability of these tools against the applicable insolvency law is of paramount importance. It is doubtful whether such legal certainty can be ensured by a self-regulatory approach. A binding action at the EU level would dovetail better with the need to harmonise a number of important areas of law. Only a binding legislative instrument would guarantee that the options are introduced in all Member States and that the rules would be sufficiently homogenous and enforceable.

Application to CCPs of the bank recovery and resolution directive

The directive on bank recovery and resolution agreed by the European Parliament and Council requires banks and investment firms subject to its scope to inter alia prepare recovery and resolution plans and equips authorities, when necessary, to engage in early intervention and resolution measures to restructure failing banks and investment firms. Some EU CCPs and CSDs with banking licenses would fall within its scope. However bank resolution rules arguably do not comprehensively address the specific features of these entities. In particular, due to the characteristics of CCPs and the functions they fulfil in financial markets, as described above and raised by a number of stakeholders in response to the public consultation¹²⁶, the application of the bank resolution directive to CCPs facing severe economic difficulties would run the risk of not being the most effective way to achieve, or even allow, an orderly restructuring of the CCP and the

¹²⁶ http://ec.europa.eu/internal_market/consultations/2012/nonbanks_en.htm

maintenance of the critical services it provides. In particular, the bank resolution approach does not take full account of the specific structure of CCP financial resources that mainly rely on the CCP default waterfall; consequently the application of the banking framework could fail to ensure an efficient coordination between the default management tools of a CCP –i.e. its default waterfall and specific recovery and resolution tools.

Adoption of a specific recovery and resolution framework for CCPs

This policy option would consist in the development of specific recovery and resolution mechanisms applicable to CCPs, taking into account their specific features and nature, covering recovery, early intervention and resolution. These would be to a large extent based on the internationally developed standards at the G20 level by the standard-setting bodies such as CPSS-IOSCO and the Financial Stability Board. Recovery measures would allow CCPs to address the threats to their economic viability and restore it by their own means, thus preventing their entry into resolution. In particular, CCPs should have recovery tools that allow them to fully allocate any uncovered losses and recoup liquidity shortfalls, to re-establish their matched book and to restore the minimum capital and financial resources required by the applicable regulation (set out by EMIR in the EU). In order to do so, the CCPs' direct and indirect participants, owners and shareholders would be exposed to losses to the extent specified in rules and agreements provided ex-ante, determining the application of one or several recovery tools. These could encompass for example supplementary default fund contributions, variation margin haircuts, cash calls on participants, allocation of unmatched contracts, etc.

In particular, CCPs would be required to adopt their recovery plans which would permit adding an additional financing layer if necessary to the default waterfall under EMIR. The recovery plans would also have to include the following: (i) identification of the critical services; (ii) identification of stress scenarios; (iii) identification of the criteria, both quantitative and qualitative, which could trigger the implementation of all or part of the recovery plan; (v) identification of the recovery tools and the tools to address structural weaknesses. Further, CCPs would be subject to resolvability assessments by authorities. The latter would be in charge of ensuring up-to-date resolution plans for CCPs.

Resolution should be initiated once a CCP is no longer viable, and has no reasonable prospect of sustaining or recovering viability through internal arrangements or other private sector alternatives. Suitable indicators of non-viability should guide the decision of the resolution authorities as to whether institutions meet the conditions for entry into resolution.

The resolution regime should be subject to the “no creditor worse off than in liquidation” safeguard. For legal certainty reasons, the starting point for measuring which losses are imposed in resolution should be based, as far as practical, on the CCP's ex-ante rules and procedures for loss allocation.

The resolution powers in respect of a CCP should be determined by the objective to continue the CCP's critical functions either by transfer to another entity or in the existing franchise, relying on its capital structure, default resources and loss allocation arrangements to the maximum extent possible thus avoiding recourse to public funds and potential losses for taxpayers. They should take into account the CCP's risk profile, including, inter alia, its exposure to credit, liquidity, type and number of products cleared and general business and operational risks. Impacts on other participants in the CCP,

interconnectedness with other CCPs, FMIs and other stakeholders (regardless of where they are located) and on financial markets more widely should also be considered.

2) Policies to foster efficient cooperation of authorities in cross border resolution

Cooperation between authorities responsible for CCP resolution in cross-border scenarios is vital. However, for the purpose of this impact assessment the question of which cross-border institutional set-up best serves efficient resolution is secondary to the primary policy imperative of how to ensure that efficient resolution is possible in the first place, and what the relative economic impacts of the options to achieve this would be. Consequently, questions of whether relevant resolution authorities should constitute permanent resolution colleges and what the respective powers of home and host authorities in the colleges should be are not considered in-depth here.

3) Central EU-level supervision and resolution of CCPs

The option of transferring the oversight and notably the responsibility to carry out the resolution of CCPs to the EU-level was raised in the public consultation. Very few stakeholders considered this a necessary step at this stage. Indeed, some of the acute reasons why this has been necessary in the area of banking ('Banking Union') notably in the Euro Area are not as manifest in relation to non-bank entities including CCPs. While critical for financial markets and the overall economy, CCPs play a less direct and prominent role compared to banks in providing funding and day-to-day financial services to households and businesses in Europe. As set out, they are also less likely than banks to fail precipitously and cause panic among counterparties and the wider public. As a result, they are less intertwined with the state notably in terms of the market perception of these institutions benefitting from an implicit state guarantee. The recent fragmentation between Member States in the business conditions for banks to fund themselves and to support onward lending to the real economy which has arisen due to weaknesses in the banking sector, the fiscal position of the respective state, or both is not nearly as evident in the case of CCPs. The transmission of monetary policy, which depends on the services of various non-banks such as CCPs as well as banks, has suffered as a result of this fragmentation in the banking area, but not ostensibly as a result of problems in the non-bank area. However, with the growth of non-bank channels in providing alternative funding means to the economy, this is an area in which developments should continue to be monitored closely.

4) The establishment of an institutional process to designate institutions operating in the EU as systemic

An option which has been raised is to develop a system similar to the one created by Dodd-Frank in the US for identifying systemic non-bank institutions and for carrying out their potential resolution. This would entail empowering a systemic risk-council with a membership drawn from the different sectoral regulators and central banks, such as the European Systemic Risk Board (ESRB), to designate specific non-bank institutions as systemic. These institutions would then become subject to heightened regulatory and supervisory requirements, including the obligation to draw up recovery plans. The process of designation would be based on mostly objective and quantitative criteria, but allowing for a degree of supervisory discretion, and providing potential designees with the possibility to challenge the council's assessment at various junctures. The resolution planning and the potential resolution of those institutions finally designated as systemic would be carried out by an authority mandated with the task, possibly the Single Resolution Board. This authority would ideally have access to mutualised funds either

set-up collectively ex-ante by systemic non-bank institutions or via a credit line from a fiscal backstop, to be reimbursed from ex-post assessments on the industry.

The benefit of this system would be the establishment of a clear, transparent procedure to designate an institution as systemic and consider the systemic risks of various non-bank institutions, as well as a clear appeals procedure. Grouping various sectoral regulators and central banks into the process would enable a horizontal assessment of systemic risks. Institutions from different non-bank sectors that have comparable degrees of systemic relevance would be subject to heightened and corresponding regulatory requirements and supervisory scrutiny. Their potential resolution would be conducted by a single authority charged with the task, thereby ensuring resolution capability and expertise, as well as mitigating concerns regarding the effects of a systemic institution's disorderly failure. Finally, the availability of pre-committed resolution funding sources for the authority would ensure medium-term funding to help the critical functions of the resolved entity regain market viability and confidence.

However, the system would also represent some notable challenges and drawbacks. First, the relevant market for assessing institutions' systemic relevance, whether in relation to the EU or the national level, would have to be determined. Second, this choice would be key in determining which non-bank institutions to scrutinise more closely based on the size of their balance sheet. Third, a relatively precise, forward-looking and objective set of indicators and drivers based on, for example, an institution's size, interconnectedness, substitutability, complexity, cross-border activity, etc. would need to be designed setting out when and where systemic risk is and may in the future be present and how it could be transmitted to other actors. Fourth, if systemic relevance is measured at the EU-level, the institutional arrangements for ensuring heightened supervision, resolution and possible resolution funding would need to be developed, with potentially significant legal and economic challenges. Fifth, given the political difficulty in applying these arrangements beyond the Euro Area, careful thought would need to go into whether the necessary coordination mechanisms between these arrangements and non-Euro Area Member States could rely on those of existing legislation (EMIR, CSDR, Solvency II, BRRD etc.) or would need different structures. Finally, a system of designations at EU-level should still allow national authorities to make corresponding assessments for entities which are systemic in their own markets, and a coordination mechanism to ensure the coherence of these designations with the internal market should be developed.

5) State ownership of CCPs

A CCP's creditworthiness and continued ability to price, collateralise and clear trades needs to be of the highest standard. It has been suggested that to secure this beyond any doubt at all times and to avoid its members from second-guessing the safety of their positions with the CCP, and withdrawing from using its services in a destabilising way, CCPs could be made non-profit agencies of the state¹²⁷. However, this option runs into several difficulties. First, as entities active across borders, the public ownership of CCPs would often have to be transnational. The difficulty of agreeing on cross-border fiscal burden-sharing of this type has been vividly illustrated by the crisis. Whether the EU Treaties would allow making a proposal with such national and cross-border fiscal consequences would need careful study. Second, public ownership is not necessarily a

¹²⁷ Paul Tucker; "Are clearing houses the new central banks?" Over-the counter derivatives symposium, Chicago, April 2014; http://www.chicagofed.org/digital_assets/others/events/2014/annual_over_the_counter_derivatives_symposium/tucker_clearinghouses_new_central_banks_tucker_2014.pdf

guarantee of better management of risks. Indeed, in some cases explicit state support can decrease standards and act as a disincentive to proper monitoring of risks by participants. Third, CCP-liabilities are between market professionals who, in return for the benefit derived from central clearing, should be incentivised to assume the risks of participating in the system.

6) CCP access to central bank liquidity

The question of whether a central bank should, as lender of last resort, extend liquidity assistance, either through routine liquidity provision tools or through emergency liquidity assistance, to CCPs that experience major financial difficulties is periodically debated. CCPs occupy a central position in the financial system and they can experience liquidity problems comparable to those of banks. Failure to extend central bank liquidity support to CCPs may lead to financial instability of the kind which central banks could, in relation to banks, typically seek to alleviate via the use of lender of last resort powers. However, if the markets were to consider that a CCP had the implicit backing of a central bank, this would present a moral hazard concern (cf. experience with banks in their capacity as deposit-takers, providers of credit and operators of payment systems in the lead up to and during the recent crisis affecting financial markets). A combination of rigorous prudential requirements and oversight, and the implementation of appropriate recovery and resolution tools could possibly help mitigate such moral hazard concerns.