

CHAPTER 11

Central counterparties

Updated on 30 September 2020

Central counterparties (CCP) have become a cornerstone of the financial market infrastructure landscape, mainly since the development of the derivatives market on the one hand and the 2008 financial crisis on the other. A central counterparty plays a very important role by interposing itself between the counterparties to a transaction.

Conceptually, the notion of a central counterparty must be clearly distinguished from that of a clearing house, whose main function is to calculate a net balance from a set of individual (or “gross”) transactions. The existence of these clearing houses, which originally were limited to clearing payment flows, goes back more than two centuries.

However, these infrastructures have evolved and nowadays, in the field of financial instruments, the vast majority of clearing houses also fulfil the role of central counterparty, and vice versa. The current practice is therefore to use either term to designate an infrastructure that offers both services. In this chapter, the term “CCP”¹ refers to a clearing house that acts as a central counterparty.

CCPs play a very specific role in the processing chain of securities and other financial instruments (including derivatives): they replace the seller and the buyer and are thus a counterparty to each of them. They are therefore at the heart of the transaction processing system for financial instruments. During the financial crisis of 2008, CCPs demonstrated strong resilience and effectively implemented their default management mechanisms, thus preventing contagion to the other financial players.

The increased role that regulators have assigned to CCPs since the crisis, especially with respect to derivatives, has been accompanied by transparency requirements and the establishment of an even more stringent international risk management

framework, which has been transposed at European Union level into Regulation (EU) No 648/2012 of 4 July 2012 on OTC derivatives, central counterparties and trade repositories,² called “EMIR” for “European Market Infrastructure Regulation”.

The standards and the regulatory framework for CCPs are still evolving. The EMIR framework was amended twice in 2019, first with regard to the requirements applicable to CCPs (EMIR “Refit”) and second with regard to the supervisory architecture for EU and third-country CCPs (EMIR 2), which was complemented by the drafting of the “Level 2”³ texts published in September 2020. Furthermore, the forthcoming European Regulation on CCP recovery and resolution,⁴ aiming at ensuring the continuity of the CCPs’ critical services after exhaustion of pre-funded resources, was agreed upon by the EU co-legislators in July 2020, and should be published in the EU official Journal by end-2020.

1. The history of clearing

As a preliminary point, the clearing of payment orders should be clearly distinguished from the clearing of financial instruments and derivatives. The clearing of payment orders is dealt with in detail in the chapters of this book dedicated to payment systems.⁵ It consists of the netting of flows (and thus represents clearing in its narrowest meaning as defined above), whereas the “clearing” of financial instruments (as defined above) also includes the interposition of a central counterparty, which becomes the counterparty for all transactions recorded in its books: the central counterparty replaces each buyer in the contract with the seller and replaces each seller in the contract with the buyer.

The history of clearing thus falls into two stages; clearing initially emerged in its simplest form, which was then accompanied by the interposition mechanism of the central counterparty.

¹ As is the case for the acronym “CSD” (see Chapter 12), the acronym CCP has become the term used most commonly by professionals, even in French.

² <https://eur-lex.europa.eu/legal-content/EN/> (English version). <https://eur-lex.europa.eu/legal-content/FR/> (French translation).

³ Commission delegated regulations, adopted following technical advice from the European Securities and Markets Authority (ESMA) as provided for under the European market infrastructure regulation (EMIR) (referred to as “Level 1” as they are set down in European legal documentation).

⁴ Resolution occurs when the infrastructure is defaulting or close to failure and is then managed by a resolution authority with broad powers to mobilise financial resources and restructure such infrastructure.

⁵ See Chapters 6 and 10.

1.1. Initially a simple flow clearing function

Clearing of bank debts managed by a central body appeared in 1587, in Venice, with the first public Venetian bank, Il Banco de la Piazza del Rialto, replaced in the 17th century by Il Banco del Giro, which was a true clearing house.

The practice gradually spread to England and Scotland; London became the main European clearing centre for national payments at a very early stage. In 1773, a clearing house opened in London, and of the City's 36 banks at the time, 31 became members. Earlier, in Scotland, seven Scottish banks had arranged to set up a clearing house in Edinburgh to clear each other's claims and debts. Net balances were calculated on a daily basis (netting).

As early as 1826, the banks of the North of England met every week to exchange sight drafts with each other to settle their net balances with the Bank of England.

In the United States, a clearing house for clearing contracts, but with no interposition, was only created in 1883 by the Chicago Board of Trade (CBOT), whose objective was then to reduce transaction costs related to financial instruments; the clearing house issued margin calls and settled cleared contracts. The CBOT played a leading role in the management of default risk, but the clearing house did not replace the parties to the transaction.

1.2. Nowadays the clearing of flows and the interposition of the clearing house are central features

The interposition mechanism of the clearing house as a central counterparty emerged with the growth of the derivatives markets. According to Moser,⁶ full and complete systems including flow clearing and clearing house interposition

in over-the-counter derivatives markets appeared in Europe in the 19th century. This was the case in France with the *Caisse de Liquidation*, and in Germany with the *Liquidationkasse*.

In France the *Caisse de Liquidation* interposed itself on the conclusion of a transaction between the buyer and the seller of a sugar futures contract, by replacing the first contract with two new contracts (with each of the counterparties to the transaction). The two counterparties to the transaction then no longer had any direct relationship with each other, but with the *Caisse de Liquidation*.

These central counterparty systems were replicated in the United States as early as 1891. In 1924, the Board of Trade Clearing Corporation kept as collateral all the securities of its members, who were then accountable to each other, introducing the concept of risk mutualisation. It guaranteed the contracts and imposed rules on the liquidity, capital and activity of said members.

1.3. The implementation of the clearing obligation for derivatives and the incentives for centralised clearing

Nowadays, CCPs clear all kinds of financial transactions (see Chapter 5): in cash equities, debt securities, repurchase agreements (repos), spot foreign exchange transactions and derivatives transactions (swaps, options, commodity derivatives, etc.). However, in most jurisdictions the central counterparty clearing is limited to derivatives.

This clearing obligation was born out of lessons learned from the 2008 financial crisis (in particular the bankruptcy of the US bank Lehman Brothers), which highlighted the lack of transparency and regulation of OTC derivatives markets.

⁶ Moser JT: "Origins of the Modern Exchange Clearing House: A history of early Clearing and Settlement Methods at Futures Exchanges" Research department, Federal Reserve Bank of Chicago, April 1994.

In response to the financial crisis, the G20 adopted a Roadmap at its Pittsburgh Summit in September 2009, which included a commitment to submit standardised financial derivative instruments to centralised clearing because it was considered safer than bilateral clearing.⁷ In response to this commitment, most jurisdictions have implemented a regulatory clearing obligation for derivatives, provided they are sufficiently standardised and liquid.

The Progress Report of the Financial Stability Board (FSB), revised in October 2019,⁸ states that of the 24 jurisdictions of the Financial Stability Board, 21 have implemented a clearing obligation.

In the European Union, Article 4 of EMIR introduces, for specific categories of OTC derivatives, a clearing obligation via central counterparties that have been authorised to clear these categories of OTC derivatives.

The EMIR delegated regulation of 6 August 2015⁹ covers the clearing obligation for interest rate derivatives (Interest Rate Swaps – IRS). The obligation applies to standardised interest rate swaps with high volumes and liquidity and good pricing information. These are simple interest rate swaps (fixed-to-float), basis swaps, forward rate agreements (FRA) and overnight index swaps (OIS), denominated in the four most commonly cleared currencies (USD, EUR, GBP, JPY). The delegated regulation of 10 June 2016¹⁰ adds fixed-to-float interest rate swaps and forward rate agreements denominated in NOK, PLN and SEK.

Contracts subject to the clearing obligation share the following characteristics:

- (i) they are single-currency;
- (ii) they include no optionality clause;
- (iii) they have a constant or variable notional (predictable), but not a conditional notional (unpredictable).

The Dodd–Frank Act (DFA) in the United States, signed into law on 21 July 2010, introduces a clearing obligation for all instruments defined as “swaps” or

“security-based swaps” under the rules published by the CFTC¹¹ and the SEC.¹²

All of the DFA’s implementing rules for clearing have been published and are in force. They apply to foreign clearing houses registered with these two entities (which is a requirement for authorisation to provide services to US clients). Accordingly, the CFTC¹³ launched a draft reform programme in 2019 of the derivatives clearing organisation status as part of its broader KISS (“Keep It Simple, Stupid”) project. According to data from the Bank for International Settlements, at 31 December 2018, 76% (in volume) of single-currency interest rate swaps entered into bilaterally were centrally cleared; the proportion was 54% for OTC credit derivatives.

This clearing obligation in accordance with EMIR also applies to credit default swaps (CDS). In this respect, several types of index contracts are subject to the clearing obligation under the CFTC’s rules since they came into force in February 2013. In the European Union, the delegated regulation of 1 March 2016¹⁴ covers the clearing obligation for credit derivatives. The instruments covered are certain European CDS indices.¹⁵

Since the entry into force of Regulation (EU) 2019/834 of 20 May 2019 amending EMIR (“EMIR Refit”), the clearing obligation has been slightly alleviated. A financial counterparty is now subject to the clearing obligation only if its OTC derivative positions exceed, at its Group level, one of the two following thresholds: EUR 1 billion for credit or equity derivative contracts and EUR 3 billion for other categories (foreign exchange, interest rate and commodity derivatives).

Furthermore, regulators have been very careful to create the right incentives to encourage centralised clearing of derivatives, in line with G20 commitments to make OTC derivatives transactions (that are entered into and cleared bilaterally i.e. without going through a CCP) safer and

⁷ “Improving over-the-counter derivatives markets: All standardised OTC derivative contracts should be traded on exchanges or electronic trading platforms, where appropriate, and cleared through central counterparties by end-2012 at the latest.”

⁸ <http://www.fsb.org/wp-content>

⁹ Commission Delegated Regulation (EU) 2015/2205.

¹⁰ Commission Delegated Regulation (EU) 2016/1178.

¹¹ Commodities and Futures Trading Commission.

¹² Securities and Exchange Commission.

¹³ Reference: 12th Progress Report of the Financial Stability Board.

¹⁴ Commission Delegated Regulation (EU) 2016/592.

¹⁵ iTraxx Europe Main 5Y and iTraxx Europe Crossover 5Y.

to increase the transparency of financial markets. To this end, in September 2013 the Basel Committee and IOSCO published standards for margin exchanges for bilateral transactions that are not centrally cleared. These standards were updated in 2015 and later in July 2019.¹⁶ In the European Union, the corresponding technical standards came into effect in January 2017 for initial margins, and in March 2017 for variation margins. Depending on the nature of the counterparties and the size of the outstanding amounts, the timetable for implementing this obligation is staggered.

1.4. The desirability of setting up a CCP

In the light of the growth of derivatives markets, and in particular over-the-counter derivatives, and beyond the instruments that are subject to a clearing obligation, the question of the desirability of establishing a CCP has become critical.

The Principles for Financial Market Infrastructures (PFMI, see Chapter 18) recommend assessing the desirability of setting up a CCP. In particular, given the costs incurred, the establishment of a CCP is not appropriate in all markets: establishing the kind of robust risk-management system that a CCP must have generally requires a significant initial investment and not insubstantial ongoing expenses.

Annex C of the PFMI contains a number of recommendations, one of which (Recommendation 4) on CCPs¹⁷ states that each market should assess carefully the balance of the benefits and costs of a CCP. This balance will depend on factors such as the volume and value of transactions, trading patterns among counterparties, and the opportunity costs associated with settlement liquidity. A growing number of markets have determined that the benefits of implementing a CCP outweigh the costs. In addition, in some cases, creating a CCP may attract international investors who would be reluctant to be the counterparts of little-known local players.

2. The role and characteristics of central counterparties

The processing of transactions by a CCP typically includes the receipt and recording of individual transactions from the trading system or a matching platform, the calculation of participants' net positions vis-à-vis the CCP, the management of the risk management systems and, lastly, the transfer of instructions to the settlement system when the financial instruments are deliverable. In the case of derivatives, there is no settlement of instruments: there is only an exchange of collateral in the form of securities or cash between the counterparties to the transaction and the CCP.

A CCP plays a fundamental role as a risk management mechanism and reduces the liquidity needs of the participants (also known as clearing members), thereby benefiting the financial markets as a whole. The CCP has clearing member default management procedures and a default loss allocation mechanism, including dedicated pre-funded financial resources. These are discussed in detail later in this chapter.

The CCP therefore calculates a net position per participant, by netting all transactions (for a given type of underlying), all counterparties combined: the primary effect of this netting is to reduce liquidity requirements for collateral deposited as a financial guarantee (securities and cash).

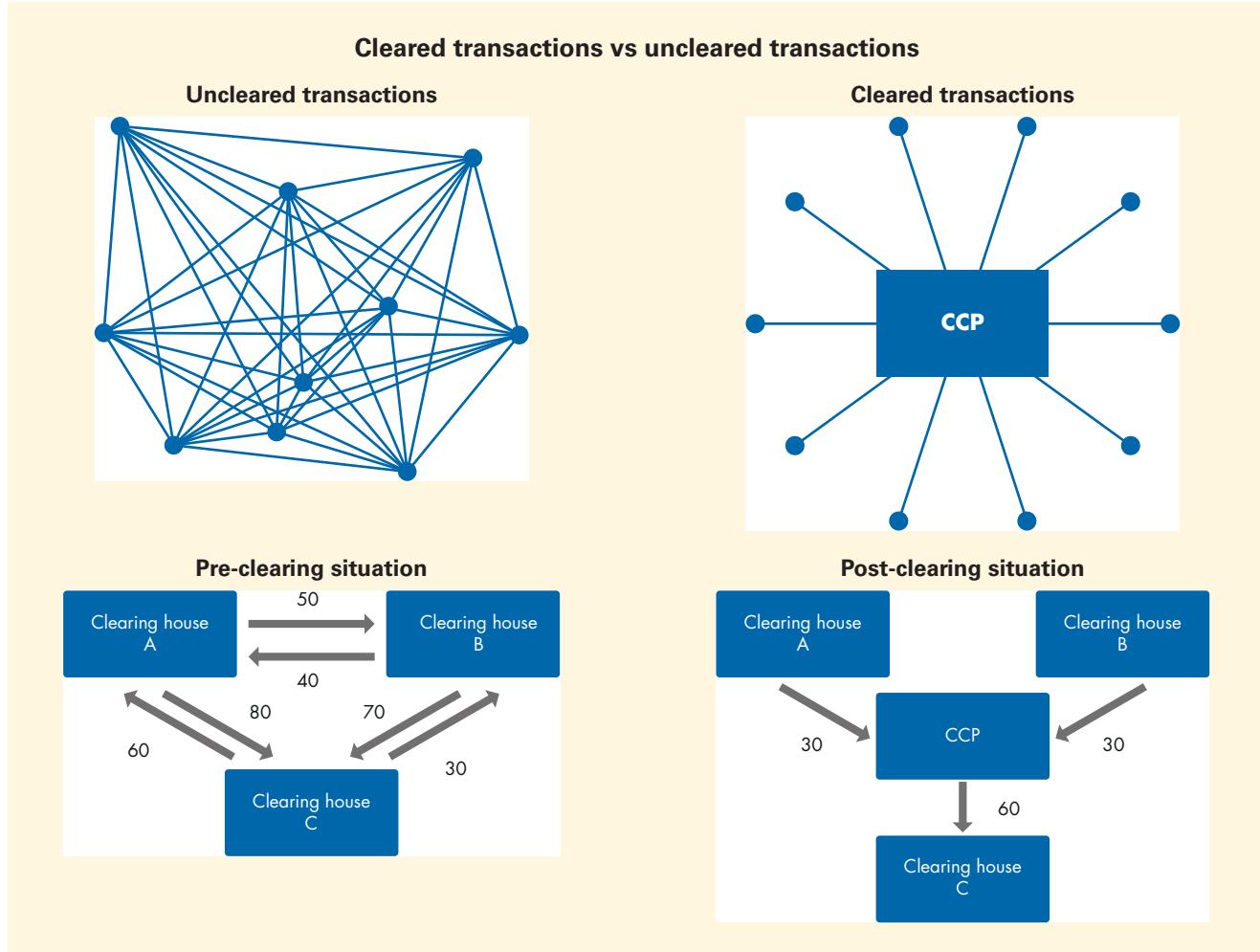
The diagrams below illustrate the mechanism for reducing the flow of payments and delivery of assets (securities or commodities depending on the CCP cleared market segment).

2.1. The interposition of the CCP: the legal mechanisms of novation and the open offer

The mechanisms described below apply to both conventional financial instruments (securities, repos, etc.) and derivatives (interest rate swaps, foreign exchange

¹⁶ <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD635.pdf>

¹⁷ This recommendation was itself taken from the "Recommendations for Central Counterparties" published in November 2004 by the CPSS (now CPMI) and IOSCO committees (see Chapter 18, Section 1.1.3).



swaps, equity derivatives, commodity derivatives, etc.).

As mentioned in the introduction to this chapter, “central counterparty clearing (CCP)” refers to mechanisms in which the clearing house, in addition to its technical function of calculating the net balances of the participating members, legally replaces the initial seller and buyer and guarantees the successful completion of transactions. It is said that the central counterparty becomes the buyer to every seller and the seller to every buyer. The purpose of this substitution is to prevent the default of a member from directly affecting the clients of the defaulting member and other members. The central counterparty takes over the obligations (payment, delivery, etc.) of the

defaulting party vis-à-vis its other members. Some CCPs may not perform the technical function of calculating net balances: in this case, they simply guarantee the successful completion of transactions and manage the associated risk management systems.

The CCP’s interposition plays a fundamental role for both market participants and overall financial stability. With respect to market participants, (i) the CCP simplifies the management of their risks by becoming the sole counterparty to financial transactions, instead of multiple counterparties, and (ii) it mitigates operational risk. The CCP must therefore meet very strict security requirements, e.g. collateralisation of all transactions, margin calls, pre-funded and calibrated resources,

default management procedures, highly regulated investment policy, etc. and be supervised by the competent authorities. Such strict requirements give the CCP the necessary robustness. The role of CCPs is, lastly, crucial from a financial stability perspective because, by centralising all transactions, they allow a clear overview of the positions of the counterparties to all transactions, and because they are designed and equipped to manage extreme but plausible market events, including the failure of a clearing member. "Circuit breakers" (see below) prevent contagion to other market participants.

The interposition of the CCP can be based on various legal mechanisms, mainly novation, used mainly in France (LCH SA) and in the United Kingdom, and the "open offer" used for example in the Netherlands (Ice Clear Netherlands), Germany (Eurex Clearing AG) and Italy (Cassa di Compensazione & Garanzia).

Through the legal mechanism of novation, the CCP takes over the rights and obligations of the clearing members. In France novation is defined in article 1271 of the Civil Code. In the case of a CCP, the CCP replaces the parties to the initial transaction in their rights and obligations. The CCP then becomes the seller to the initial buyer and the buyer to the initial seller.

The legal mechanism of the "open offer" is slightly different: the CCP interposes itself between the buyer and the seller immediately after they have agreed on the terms of the contract. In other words, under the open offer, the buyer and the seller are deemed never to have had a contractual relationship.

In both the novation and the open offer mechanism, the CCP finds itself as a counterparty to the original buyer and seller. The difference between the two regimes lies in the exact moment when the guarantee is taken over by the CCP – at the time of execution for the "open offer" and at the time of receipt of the transaction

by the CCP for the novation. This may be of importance in the case of technical transmission problems between the trading platform and the CCP.

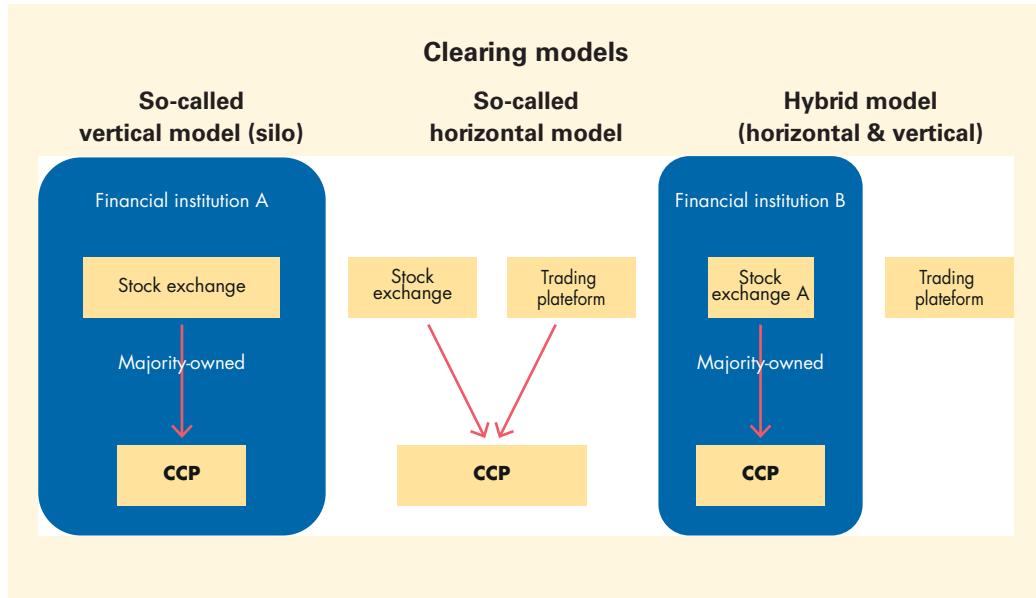
2.2. The different organisation models of the clearing market

CCPs are required to clear both transactions from regulated markets (exchanges) and trading venues as well as over-the-counter transactions. In the first case, we are dealing with what it is commonly referred to as "listed" products, while in the second case we have bilateral transactions between two counterparties – for example on repos, interest rate swaps or credit.

2.2.1. Mono-product clearing versus multi-product clearing

Some CCPs only offer a clearing service for one type of financial instrument. This is the case, for example, of the Dutch CCP EuroCCP, which only clears cash equity transactions. This is called a mono-product clearing service. In general, mono-product central clearing is provided by smaller CCPs. The main limitation of this model is that it does not allow participants active in more than one market to benefit from a one-stop clearing of their transactions.

The larger CCPs offer clearing services for various financial instruments, e.g. listed derivatives, OTC derivatives, sovereign debts, equities: this is the case in Europe, with notably Cassa di Compensazione & Garanzia, Eurex Clearing AG, ICE Clear Europe, LCH SA, LCH Ltd and Nasdaq OMX. The advantage of being able to offer clearing for several products is to be able to clear positions of products or currencies that benefit from a stable and significant correlation (see Section 3.1.4 developments on portfolio margining), which translates into lower margins and consequently savings in collateral for clearing members. Another economic advantage lies in the pooling and sharing of infrastructures, services and applications with fixed costs between the various market segments cleared by the CCP.



2.2.2. Relationship between the CCP and the trading venues

In the context of clearing instruments traded on trading platforms, there are different models for the relationships between the CCP and the trading venues. These different organisational models are described below.

The so-called vertical model (or silo) is a model in which clearing services are provided by an infrastructure belonging to a group that includes the trading platform, the clearing infrastructure and, where applicable, the settlement infrastructure. The vertical model entails an exclusive relationship between the market and the CCP, which is in general the economic complement of other functions, in particular trading. This is how the German group Deutsche Börse is organised.

The so-called horizontal model is a model in which trading platforms do not have a majority capitalistic link with the infrastructure that clears trades. The CCP bases its business model exclusively on clearing revenues and seeks to clear trades entered into across multiple trading venues. This is the case for example of the Dutch CCP

EuroCCP held in 2020 by the Chicago Board Options Exchange (CBOE) and which, at the beginning of 2019, cleared transactions originating from nearly thirty trading platforms, including multilateral trading platforms such as those of Nasdaq OMX, Alternext, Euronext, Traiana, Turquoise, Cboe Europe Equities, Equiduct, etc.

The so-called hybrid model (both horizontal and vertical) is a model in which there is a capital link between the trading platform and the clearing infrastructure, but which nevertheless allows other trading infrastructures to benefit from the clearing services of the clearing infrastructure. The French CCP LCH SA is one example.

2.2.3. Interoperability

A CCP may participate in another CCP through the interoperability mechanism. Interoperability is an organisational model for linking market infrastructures: applied to CCPs, this arrangement allows the orders of a member active in one of the two CCPs to be matched anonymously with those of a member active in the other CCP without either of them needing to be a member of both CCPs. Interoperability

Box 1: The case of LCH SA

The French CCP LCH SA (trading name of Banque Centrale de Compensation) is the French subsidiary of the UK group LCH Group Limited. From May 2013, the London Stock Exchange Group (hereinafter "LSEG") held the majority of the shares of LCH Group Limited. In October 2018, it increased its stake in LCH Group Limited by 15.1% to nearly 82%. As LSEG does not constitute a financial group, it is not supervised by the French authorities.

LCH SA is headquartered in Paris and has branches in Amsterdam and Brussels, as well as a representative office in Portugal.

The clearing services provided by LCH SA mainly concern euro-denominated products.

- Securities traded on Euronext regulated markets: cash equities and convertible bonds;
- Derivatives traded on Euronext regulated markets: equity derivatives (indices and single stocks) and commodities;
- Transactions in government debt (France, Italy, Spain, Germany and Belgium): cash purchases and sales and repurchase agreements.
- Derivatives traded on OTC markets: CDS on indices of referenced names and single name issuer CDS.

The CCP thus clears the products traded on the Equiduct, Turquoise Luxembourg Stock Exchange, and repo trading platforms (MTS, Brokertec, Tullett Prebon).

LCH SA has the status of clearing house pursuant to Article L. 440-1 of the French Monetary and Financial Code and, as such, acts as a central counterparty for its clearing members.

LCH SA is also authorised as a credit institution by the French Prudential Supervision and Resolution Authority (ACPR). Due to its status as a credit institution, LCH SA is subject to prudential banking requirements and has access to the Eurosystem refinancing operations.

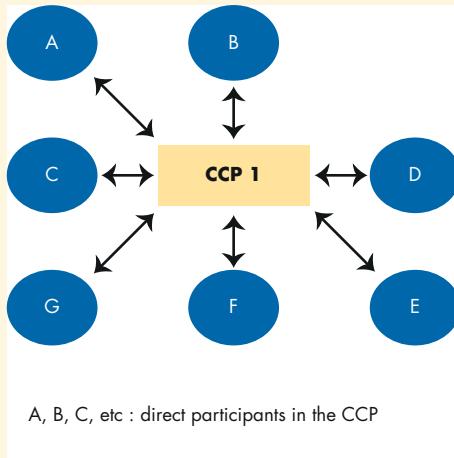
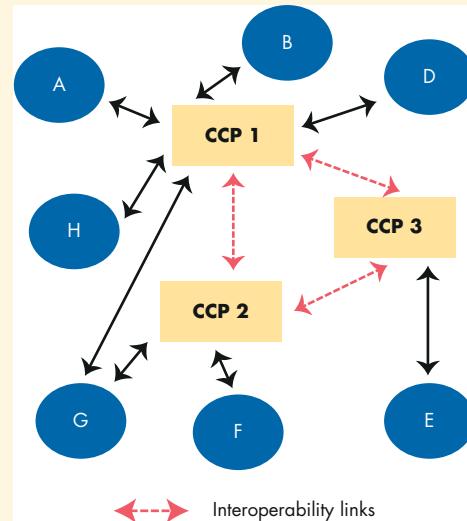
Within the framework of the European Directive 98/26/EC on settlement finality (hereinafter referred to as the "Finality Directive"), LCH SA has been designated by the French Ministry of Finance as a system notified to ESMA.¹This status allows it to benefit from the provisions of the "Finality Directive"² by making irrevocable and binding on all participants in said system the clearing of bank or financial claims in the event of collective insolvency proceedings against one of the participants. This directive also guarantees the transfer of ownership of the financial instruments, i.e. the collateral delivered to the CCP by the participants as protection for their positions.

The French CCP, as a financial market infrastructure, is supervised by the ACPR, the Autorité des marchés financiers (Financial Markets Authority – AMF), and the Banque de France. The three authorities have been designated as competent national authorities by the French State pursuant to EMIR.

The authorisation of the French CCP under the provisions of EMIR was the subject of an evaluation conducted in April 2014 by the three competent national authorities, which found that LCH SA complies with the requirements of EMIR. In this context, the ACPR authorised LCH SA under EMIR on 22 May 2014.

¹ ESMA, European Securities and Markets Authority.

² Directive 98/26/EC of the European Parliament and of the Council of 19 May 1998 on settlement finality in payment and securities settlement systems.

A CCP with no interoperability link**Interoperability between CCPs**

is defined in PFMI Principle 20 (see Chapter 18) as a set of operational and contractual agreements between two or more infrastructures, directly or through an intermediary. A financial market infrastructure can therefore link with (i) a similar infrastructure to extend its services to additional financial instruments or to new markets – this is interoperability – or (ii) a different market infrastructure, e.g. a CCP for securities markets may establish and use a link with a central depository to receive and deliver securities.

Interoperability is only possible when the two CCPs in question have entered into agreement, thus becoming counterparts to each other. Interoperability involves controlling the systemic risk that would be triggered by a failure of the CCP with which the link has been established. Determining the additional resources needed to cover this risk therefore requires the consideration of instability hypotheses of inter-CCP positions.

In Europe the links between CCPs are as follows:

- CC & G and LCH SA: Italian sovereign debt;
- Euro CCP and LCH Ltd: equity securities;

- Euro CCP and Six x-Clear: equity securities;
- LCH Ltd and Six x-Clear: equity securities;
- LCH Ltd – Six x Clear (Norwegian subsidiary): equity securities and equity derivatives.

In this context, each CCP must establish a general framework to detect, monitor and manage the risks that may result from interoperability.

EMIR strictly regulates interoperability arrangements, which should only relate to transferable securities and money-market instruments – OTC derivatives are excluded, since the European regulator considers that they can not be cleared in the context of interoperability¹⁸ given the complexities involved in interoperability arrangements. It should be noted that interoperability introduces a risk of counterparty default between CCPs, as opposed to a simpler structure in which a trading platform is linked separately to each CCP. Linking CCPs with interoperability arrangements means expanding the interdependencies between them, in this case to the clearing members of the other CCP.¹⁹ This can increase the systemic risk.

¹⁸ EMIR Recital 73: “[...] addition, given the additional complexities involved in an interoperability arrangement between CCPs clearing OTC derivative contracts, it is appropriate at this stage to restrict the scope of interoperability arrangements to transferable securities and money-market instruments.”

¹⁹ OTC derivatives: new rules, new actors, new risks, Banque de France, Financial Stability Review No. 17, April 2013 <https://publications.banque-france.fr/en/april-2013>. “CCPs as instruments of stability and risk mitigation” by J. Aigrain.

The principle of segregation of positions and assets (see Section 3 of this chapter) is also applicable to interoperability arrangements.

EMIR contains special provisions relating to the risk management of two CCPs bound by an interoperability agreement. In the context of an interoperability arrangement, the two CCPs do not contribute to their respective default funds (see Section 3.1.5 below): this effectively limits the risk of contagion between the two infrastructures, insofar as the resources of the surviving CCP are not affected by the losses of the defaulting CCP. Risk coverage is therefore done only through an exchange of margins between the two CCPs (including the possibility for each CCP to call additional margins).

Beyond interoperability, the analysis of the interdependencies between CCPs is an important point of attention for regulators, particularly within the framework of counterparty default risk stress tests coordinated by ESMA,²⁰ but also through default simulation exercises conducted by European CCPs and their respective regulators to evaluate the interconnections of their common direct participants (February 2016) and international and European other streams of work (BIS, ESRB).²¹

In 2017 the Bank for International Settlements (BIS) also published a study dedicated to the analysis of interdependencies related to central clearing;²² the roll-over of the survey in 2018 to include data up to October 2017 showed that the study's findings remained valid.²³ Using a sample of 26 CCPs worldwide, the study highlighted the high level of interconnections due to common participants (see Chapter 17). It also revealed strong interdependencies among CCPs (without these necessarily being interoperable) and between CCPs and other market participants – including custodians, settlement agents, liquidity providers and investment services providers – some of which are also clearing members. Work

in this area, which highlights the highly systemic nature of CCPs, is ongoing.

3. Mechanisms to protect CCPs against the risks to which they are exposed

Access to CCPs must be fair and open: the membership criteria for joining a CCP must therefore be non-discriminatory and objective. The CCP must strike a balance between this principle and the access criteria that constitute its first line of defence. A CCP is indeed very much exposed to credit risk if one of its participants defaults. By becoming the buyer to the seller and the seller to the buyer, the CCP effectively assumes credit risk on each counterparty.

3.1. The CCP's protection mechanisms

The CCP's protection mechanisms against credit risk apply as soon as the membership criteria are laid down. The other tools available to the CCP include individual pre-funded resources (initial margin and variation margin) and pooled funds (default funds).

3.1.1. The criteria for direct membership

The criteria for direct membership of clearing members or CCP participants is the first line of defence in a CCP's risk management. The criteria must be objective and sound. The criteria mainly relate to the scope of the participant's business, its status, solvency, ratings, etc.

To date, there are no regulatory requirements at EU level regarding the quality of clearing members, as EMIR does not include any provisions in this respect; these criteria are therefore the responsibility of each Member State.

In France, participants' access to a CCP is governed by article L. 440-2 of the Monetary and Financial Code: the CCP participant

²⁰ European Securities Markets Authority or ESMA.

²¹ European Systemic Risk Board.

²² "Analysis of central clearing interdependencies" <http://www.fsb.org/wp-content/> (July 2017).

²³ <https://www.bis.org/press/p180809.htm>

must be a legal person and must belong to one of the following categories: (i) credit institution, (ii) investment firm, (iii) supra national entities (international financial institutions or government agencies and controlled enterprises operating under a State guarantee). The PACTE Law, before Parliament at the time of writing, provides for the conditional possibility of direct participation in a CCP to be extended to funds and insurers. These strict access conditions related to the status of the participants ensure the high quality of direct participants in the CCP and thus to strengthen the system for pooling losses in the event of default.

In addition to the national regulatory or legislative provisions with which they must comply, counterparties to a transaction must subscribe to a membership contract with the CCP and meet the membership criteria defined by the latter. These counterparties then become participants (or "Clearing Members") of the CCP. Participants then benefit from clearing services in exchange for the payment of fees and of margins as well as a contribution to a default fund to protect against a possible default. Each member can carry out transactions on their own account, but also transactions on behalf of clients. These clients are usually smaller institutions or do not meet the requirements for direct membership of the CCP.

In accordance with the principle of segregation of positions and assets (see Section 4 of this chapter), CCPs must distinguish the positions and assets of a clearing participant from those of another clearing participant, and also from their own assets. Likewise, the clearing participant's positions and assets must be distinguished from those of its clients.

Institutions that do not meet the eligibility criteria required by the CCP to become direct participants and clear their orders directly with the CCP are obliged to go through direct participants. These players are known as "indirect participants" or "clients".

3.1.2. Indirect participation models

There are two models for indirect participation:

- the agency clearing model, which is predominant in the United States. Under this model, the direct participant in the CCP (referred to in the United States in the field of derivatives trading as a "Futures Commission Merchant" or FCM) is mandated by the client to guarantee and make its payments and/or deliveries. The client and the CCP have a direct link, with the client benefiting directly from the CCP's performance guarantee through its FCM. The latter is responsible vis-à-vis the CCP for the client's commitments;
- the so-called "principal" model is predominant in Europe. It is based on two separate legal relationships: this model implies that the clearing member has a contractual relationship with the CCP, it acts on its behalf and it sets up a "mirror" contract with the client. In the "principal" model, the client has exposure to the direct participant in the CCP and not to the CCP.

In both models, the CCP puts in place procedures to protect the assets of clients by distinguishing them from those of the direct participant to limit the risk of contagion of a default of the direct participant to its clients: this is called segregation (see Section 3.1.6 of this chapter). In addition, in the event of the default of a clearing member, the CCP must provide for the transfer of the client positions of this clearing member to another "non-defaulting" clearing member: this is called portability.

A hybrid model is currently being considered by several European CCPs, and is already in place in countries such as Germany. This direct access model is called "sponsored". The model allows the client to become a direct counterparty to the CCP. The client has an agent who pays contributions to the default fund on its behalf, and who,

if necessary, is involved on behalf of its client in the management procedures of a default by a clearing member. Depending on the model envisaged, the agent can also act as paying agent for the client's transactions e.g. margin calls, collateral management, etc.). This model allows the client to have direct access to the CCP, without having to meet the strict requirements and access criteria as a clearing member, while enjoying lower margin requirements than if it were an indirect participant. From the point of view of the prudential requirements, this model allows the agent not to take into account the exposures related to the transactions and the margins of its client, for example for the calculation of its capital requirements.

3.1.3. Margins (or deposits)

The initial margin deposit, or initial margin, is deposited within the CCP (in the form of cash or highly liquid and safe assets). This initial margin corresponds to the estimated loss related to the drop in the market value of the defaulting member's position, in the event of a liquidation of the defaulting member's portfolio over a few days, assuming (i) adverse market conditions, and (ii) the absence of variation margins during this time span. It must cover any losses – with a probability of at least 99% under EMIR, and 99.5% for OTC derivatives – related to market changes on exposures during a liquidation period based on the cleared financial instruments and their liquidity. For example, initial margins assume a five-day liquidation period (pursuant to EMIR) for over-the-counter derivatives, which are deemed to be less liquid than listed derivatives, for which a liquidation period of two days has been assumed.

Variation margins are used to hedge the CCP's market risk related to changes in the value and risk of the positions of clearing members, based on market prices. The calculation of the variation margin is based on the difference between the market value of portfolio transactions at the time of the last valuation and their initial value, to cover the possible replacement

cost of transactions at their market value. Participants whose positions depreciate are called upon to pay variation margins. These are adjusted at least daily. Margin calls are made at least once a day, or even during the day if market volatility is high.

The CCP controls – at least several times a day – the adequacy of the margins it holds in the face of its exposure to risks. These controls typically focus on back-testing margin levels relative to members' portfolios. The objective of back-testing is to check ex-post that the level of pre-funded resources held by the CCP is sufficient to cover its exposure, based on the positions of the clearing members and the prices actually observed in the market. Back-testing allows the CCP to learn from any errors, and adjust the risk management model if needed. It is necessary to assess the method used and to validate the CCP's risk management model.

3.1.4. Portfolio margining

For a CCP, portfolio margining involves calculating an initial margin amount based on an estimate of the losses of a clearing member's portfolio by taking into account instruments that belong to one or more specific business segment(s) e.g. equity derivatives, CDS or repos.

Portfolio margining allows a CCP that concentrates the same type of instruments in multiple currencies, or different instruments with a significant correlation, to call lower initial margins, in the aggregate, from its clearing members than if the margins had been calculated instrument by instrument and/or currency by currency. This practice allows clearing members to deposit margin amounts that are significantly lower than would be required if the CCP estimated potential losses instrument-by-instrument or currency-by-currency.

In the European Union, the practice of portfolio margining is governed by Article 27 of EMIR Technical Standard 153/2013. For the record, according to article 27 of

Box 2: The special case of cross-margining

In a cross-margining agreement, two CCPs calculate a margin corresponding to the consolidated positions in each CCP of a common clearing member, thereby giving said clearing member a reduction in the margins called in the event of a negative correlation between the two portfolios. In a cross-margining agreement, the two CCPs agree on a common risk model and calculate the required initial margin based on the combined portfolios. The clearing member is therefore only called for a reduced amount reflecting the correlation between these two portfolios.

In practice there are two models for cross-margining agreements:

- The first model is integrated, which means that the cross-margining arrangement is managed by a single CCP.¹ The transactions for which margins are calculated under a cross-margining agreement are segregated on the same positions account (whatever the CCP with which they have been entered into). These positions are covered by margins that are calculated on the basis of the portfolio as a whole and held in a dedicated margin account. Margin and position accounts are managed by one of the two CCPs, who is the “administrator”. In the event of a participant’s default, both CCPs coordinate the default management processes (a margin calculation under a portfolio margining agreement assumes simultaneous liquidation of all relevant positions). Any losses are absorbed first by the dedicated margin account, then by the two CCPs (either in proportion to the positions of each CCP or equally) by first using the rest of the defaulting participant’s collateral (margins of the other accounts and contribution to the default funds), and lastly the default funds of the two CCPs. For the calculation of the “stress test loss” of each participant (which can determine the size of the default fund under the “Cover 2”² principle), the CCP’s exposures to the positions of the cross-margined account are taken into account by each CCP;
- The second model maintains the segregation of accounts between the two CCPs but takes into account the positions of the other CCP.³ Accordingly, each CCP calculates the margins corresponding to its participant’s portfolio separately, and then deducts on a prorated basis from the calculated amount the portion corresponding to the gains that portfolio margining procures to the participant’s combined portfolio. In theory, if the losses of a CCP exceed the collateral remaining on this margin account, this means that gains have been made by the liquidation of the positions held by the other CCP: each CCP therefore has a claim on the other, equal to the difference between the margins calculated separately and the margins it actually holds.

In the event of a default, the two CCPs should closely coordinate their default management processes, from the declaration of default to the simultaneous liquidation of the defaulting participant’s positions (essential to preserve the benefit of portfolio margining). In practice, this would imply that the coordination is such that management of the default is carried out at a central point to be perfectly synchronous. It would therefore be operationally cogent to entrust default management to one of the entities for the cross-margined portfolios.

In these two cross-margining models, the CCPs are obliged to set up close coordination to manage a default, which implies that one of the two CCPs acts on behalf of both. Otherwise, both are exposed to greater losses than those covered by the called margins. In essence, this implies outsourcing by one CCP to the other, or at least a very strong dependence.

1 This model is used for example by the US CCPs CME and OCC.

2 The “Cover 2” principle refers to the need to cover the default of the two participants with the largest exposures. For more details see Section 3.1.5 below.

3 This model is used by the US CCPs FICC and CME.

.../...

Cross-margining is relatively developed in some jurisdictions, including the United States, where cross-margining solutions have been implemented between multiple CCPs, and across different business segments (e.g. between CME/OCC and CME/FICC, respectively). By contrast, the European regulation prohibits cross-margining insofar as it does not allow a CCP to have full control of its pre-funded resources, as required by EMIR. There are two reasons for this:

- First, from the point of view of financial stability, cross-margining creates cross-exposures between CCPs (at least some of the margins of one serving to cover the risk of the other) that increase interdependencies and the risk of contagion between CCPs. The losses incurred by each CCP and their coverage by the available collateral depend not only on the situation in the markets but also on the quality of each CCP's default management, in terms of the liquidation of the portfolio and the collateral of the defaulting clearing member. The allocation of some of the losses to the collateral of the other CCP creates a moral hazard that may in some cases reduce the incentive for good default management. In addition, in particular in a cross-border context, the supervisor of the CCP which must cover the losses of the other CCP could refuse to authorize the transfer of the collateral, especially if it considers that this collateral must cover the losses of the CCP itself or that the management of the default by the other CCP is deficient;
- Secondly, the coordination of default managements can be problematic. Portfolio margining requires the simultaneous liquidation of portfolios throughout the relevant scope. Although the procedures theoretically assume rapid liquidation based on a pre-established timetable, experience shows that CCPs sometimes prefer to keep the portfolios for longer for operational reasons or to wait for a return to better fortune. Moreover, given the market volatility in this type of context, it is important that the operational coordination be such that the actions are virtually simultaneous. In practice, this requires single-location coordination for the two CCPs, which is tantamount to entrusting the default management process to one of the two entities.

EMIR, a CCP can calculate its margins at the level of a portfolio of financial instruments under the following conditions:

- if the prices of these instruments feature a reliable and significant correlation;
- if this correlation is reliable over historical periods, shows "resilience during periods of stress" and corresponds to an economic rationale between the instruments;
- the CCP can then take into account up to 80% of the gains realised, unless it can demonstrate that taking into account 100% of the gains does not change its risk profile.

Portfolio margining relates to a clearing mechanism between financial instruments or currencies within a single CCP. In some jurisdictions, in particular the United States,

there is also a clearing arrangement between instruments or currencies for the same clearing member in more than one CCP; this is called cross-margining.

3.1.5. The pooled default fund

Participants (i.e., clearing members or indirect participants in the agency model) contribute to the pooled default fund established within the CCP to cover their exposures that are not covered by margin calls. This fund must be funded in advance by the clearing members, with a contribution that is either proportional to the central counterparty's exposure to these members (which is the usual case) or fixed. The methods for calculating the contributions of clearing members to the default fund are determined by the CCP.

Following the serious defaults observed since 2008 (Lehman Brothers, MF Global),

the international standards (Principles for Financial Market Infrastructures or PFMI, see Chapter 18) provide that pre-funded resources (i.e. the combination of initial margins and contributions to the default fund) must at least cover the default of the participant with the largest exposures (Cover 1). This coverage requirement is more stringent for systemically important CCPs or those which clear complex products: they need to cover the default of the two participants with the largest exposures (Cover 2).

EMIR has chosen the most demanding coverage (Cover 2) for all CCPs in the European Union. In accordance with EMIR (Article 43), the calibration of the default fund must thus allow the CCP to withstand extreme but plausible market events and to cover the two largest exposures to its participants. In practice, the default fund is usually sized to reflect the results of the CCP's internal stress tests: from these extreme but plausible scenarios, the CCP determines for each clearing member the maximum loss that would exceed the initial margins (called the 'stress test loss over initial margin', or STLOIM): the default fund is then calculated as the sum of the two highest STLOIMs, which guarantees that the CCP meets the "Cover 2" requirement.

The CCP conducts daily tests (stress-testing), to measure the adequacy of its resources (the margins and the contribution to the default fund) in case of an extreme, but plausible, change in market conditions. These stress tests are based on historical and/or hypothetical scenarios. In addition, CCPs have set up "reverse stress tests". These should allow a CCP to assess the limits of its coverage levels, by identifying the conditions under which it would no longer be able to absorb losses.

3.1.6. Segregation and portability

The pre-funded resources (margins and contributions to default funds) called by the CCP to cover participants' exposures

are deposited by the latter in the CCP's books, in the form of either a transfer of ownership or a pledge. EMIR sets strict requirements regarding the quality of the collateral, which must be deposited either in the form of cash or in the form of highly liquid financial instruments with minimal market and liquidity risk. Depending on the instruments delivered, haircuts are also applied to allow for a potential drop in the value of the delivered collateral between the last valuation of said collateral and the probable time of its liquidation. Additional security is brought by an EMIR regulatory requirement to deposit collateral securities with operators of securities settlement systems which guarantee the full protection of these financial instruments (see Chapter 12 on CSDs).

European regulations require transparent collateral management. This means that the positions and collateral must be segregated in the accounts of the CCP to preserve the positions of clients from a defaulting clearing member and thus avoid the risk of contagion. The main advantage of segregation is to avoid sharing losses, by clearly distinguishing the assets of each clearing member and those of the CCP, as well as the assets of each client of the same clearing member, provided said client has opted for individual segregation. Furthermore, in the event of a clearing member's default, segregation allows the portability of the positions of its clients to another "healthy" clearing member. This mechanism ensures continuity of contracts by transferring client positions, and allows CCPs to track and monitor the risks associated with the concentration in a few large participants of the exposures generated by indirect participants.

When managing a default, CCPs seek to minimize the losses in the portfolio of the defaulting member. To do this, they have a number of tools, such as:

- the inventory of the defaulting member's portfolio;

- where possible, the transfer of the positions and guarantees of the defaulting member's clients to another member;
- the use of the initial margins deposited by the defaulting member;
- the application of a liquidation strategy for non-transferred positions (type of asset/portfolio);
- neutralisation of the defaulting member's portfolio risk by taking reverse positions in the market, and/or by selling the portfolio through an intermediary.

In the event that the liquidation of the clearing member's portfolio has generated a profit, it is paid to the defaulting member's

administrator. In contrast, if the liquidation results in a loss, the non-defaulting members contributions to the default fund are used.

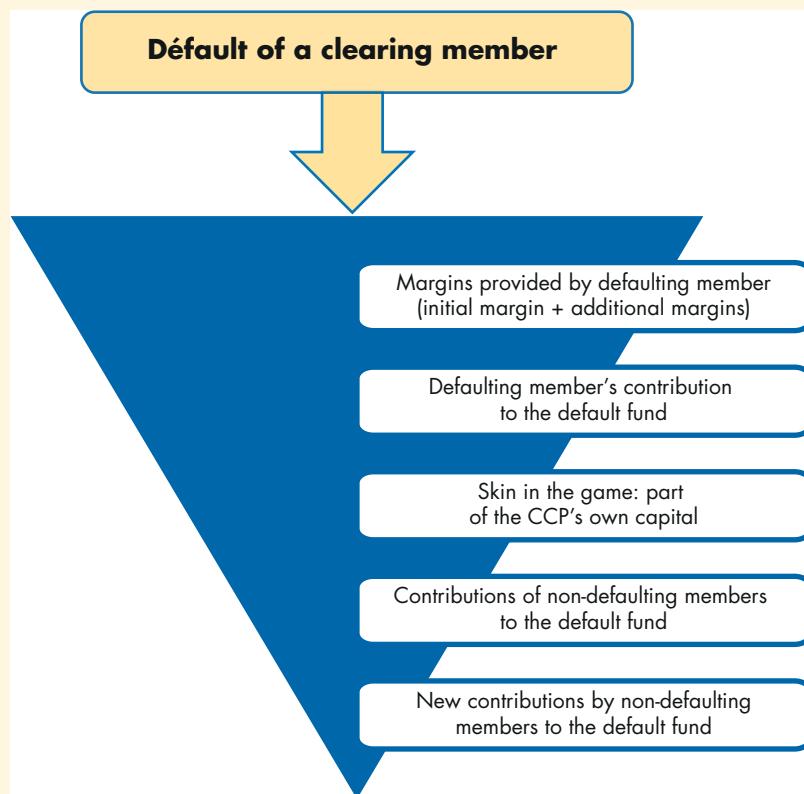
3.1.7. Tiered allocation of losses

In the case of the management of a member's default, EMIR prescribes an order for the use of resources, or a tiered allocation of losses ("waterfall process").

If a default occurs, the CCP settles the defaulting member's positions as follows:

- **First level:** the margins provided by the defaulting member (initial margins and additional margins laid down by the CCP). The use in first position of the defaulting member's margins is aimed at prompting participants to manage their

Box 3: Loss allocation order ("waterfall") under EMIR



- risks prudently and CCPs to properly calibrate these margins;
- **Second level:** the defaulting member's contribution to the CCP's default fund. If the CCP is organised in several business segments – as is the case for LCH SA for example, which has fixed income, cash and derivatives, CDS, etc. segments –, it can define for each business segment a separate and waterproof default fund: this means that closing a business segment will not result in contagion to other segments;
 - **Third level:** part of the CCP's own resources ("skin in the game"). The CCP's own resources must be used before those of the non-defaulting members. This incentive scheme for good risk management by the CCP is specific to the European framework and EMIR; other jurisdictions, such as the United States, do not provide for a regulatory obligation in this area, even though this good practice is fairly widespread. In Europe, the "skin in the game" is determined by regulation and must correspond to at least 25% of the CCP's capital requirements (set by EMIR). This 25% is then distributed among the various business segments, in proportion to the size of the segment (and in particular the size of the default fund retained by the CCP for each segment);
 - **Fourth level:** contributions to the default fund from non-defaulting members. It is through the use of these resources that the losses are mutualised. The initial margins of non-defaulting members are excluded from the mutual loss coverage. Where the default fund has been fully used, it may be replenished at CCP's request.

If all of the pre-funded resources described above are insufficient to absorb the losses of the defaulting clearing member's portfolio, a recovery phase may be initiated requiring the surviving clearing members to provide additional resources:

- The CCP may apply a variation margin gains haircut (VMGH), on a pro rata basis between the clearing members, to those owed to the defaulting clearing member.
- The positions of clearing members with a reverse position to that of the defaulting clearing member can be cancelled in exchange for the payment of an indemnity.
- If the preceding steps do not cover the losses generated by the liquidation of the defaulting clearing member's portfolio, then the surviving clearing members will have to contribute so that the clearing service can continue via a new contribution to the default fund within the limit provided for by the CCP's operating rules.
- **As a last resort**, and to avoid contagion to other business segments for which the CCP offers clearing services, the CCP could decide to close the relevant clearing segment.

In addition, if justified in terms of financial stability, the resolution authority may trigger at any moment the resolution of a failing CCP. The resolution authority would then decide to recourse to certain tools in order to preserve the critical services provided by the CCP, while avoiding at all possible extent the recourse to public funds.

The forthcoming EU regulation on the recovery and resolution of central counterparties, the negotiation of which came to an end in the course of summer 2020 and which should be published by end 2020, will standardise the tools that CCPs and their resolution authorities have at their disposal, as well as how they may use them. Regarding recovery, depending on whether financial losses incurred by a CCP are linked to the default of one or several clearing members or not (e.g. operational issues of which the CCP can be held responsible; financial loss due to a CCP's investment policy), different tools will be made available.

The regulation also details how CCPs can be handled in resolution, with a limited list of tools at resolution authorities' disposal, which they may use in order to preserve financial stability and a fair allocation of losses between stakeholders, with the overall aim to avoid public funding to all possible extent.

4. Standards and regulations applicable to CCPs

4.1. Standards applicable to CCPs at the international level

Market infrastructures, and in particular CCPs, worked well during the financial crisis, in particular by limiting the risk of contagion. Nevertheless, it has become necessary to strengthen their robustness and thereby improve their contribution to financial stability and the mitigation of systemic risk.

This is the focus of the Principles for Financial Market Infrastructures (PFMI) published in April 2012 (see Chapter 18). Compared to the set of standards²⁴ they replace, the PFMI are now unified in a single document, updated, harmonised and strengthened. Their objective is to strengthen the infrastructures and enable them to better withstand financial crises and in particular a potential default by one or more participants.

The PFMI include a chapter on the responsibilities of central banks, market regulators and other competent authorities in the field of regulation, control and supervision of these infrastructures.

In view of the growing importance of CCPs, particularly as a result of the implementation of the G20 commitments related to the clearing obligation of standardised derivatives, in 2015 the Financial Stability Board, the Basel Committee, the Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO) initiated the CCP Workplan to strengthen

the resilience, recovery and resolution of these infrastructures. This workstream first led to recommendations clarifying the PFMI,²⁵ giving guidance on the main aspects of CCP risk management, including governance, stress tests relating to credit and liquidity risk, risk coverage, margins and contributions to absorb CCP losses. Another report supplemented the 2014 CPMI-IOSCO guidelines for CCP recovery²⁶ – including making recovery plans operational, dealing with non-default losses, providing for replenishment of resources, and providing details on the use of recovery tools. Peer reviews conducted by CPMI-IOSCO on the implementation of the PFMI by infrastructures (see Chapter 18, Section 1.3) also examined the financial risk management and recovery practices of 10 CCPs clearing derivatives in two reports (August 2016²⁷ and May 2018²⁸).

Regarding resolution, a complementary guidance of the Financial Stability Board was published in 2017²⁹ on the powers of the resolution authorities to maintain the critical functions of CCPs, loss allocation tools, the establishment of crisis management groups and the development of resolution plans, in addition to the work already published by the Financial Stability Board.³⁰

4.2. The European principle of open access

The European regulatory provisions aim to open to competition the processing of the trading and also the clearing of financial instruments to prevent the establishment of de facto monopolies, which would be facilitated in particular by the silo organisation of certain markets. The principle is that there must be a choice as to the place of execution of orders (trading venue) and also the place of clearing of financial instruments: this is the "open model." The main purpose of MiFID 2³¹ and MiFIR³² of May 2014 (see Chapter 5) is to place order execution venues³³ in competition with each other and allow (i) non-discriminatory access for investors to execution venues and (ii) non-discriminatory access for execution venues to CCPs and payment systems

²⁴ CPSS, "Core principles for Systemically important Payment Systems", January 2001. http://www.bis.org/cpmi/CPSS-IOSCO_Recommendations_for_Securities_Settlement_Systems_November_2001.pdf

²⁵ CPSS - IOSCO, Recommendations for Central Counterparties, March 2004. http://www.bis.org/cpmi/CPSS-IOSCO_Recommendations_for_Central_Counterparties_March_2004.pdf

²⁶ "Resilience of central counterparties (CCPs): Further guidance on the PFMI" http://www.bis.org/cpmi/CPSS-IOSCO_Recommendations_for_Central_Counterparties_Further_Guidance_on_the_PFMI.pdf (5 July 2017).

²⁷ "Recovery of financial market infrastructures – revised report" http://www.bis.org/cpmi/CPSS-IOSCO_Recommendations_for_Central_Counterparties_Recovery_of_FMIs_Report.pdf (5 July 2017).

²⁸ https://www.bis.org/cpmi/CPSS-IOSCO_Recommendations_for_Central_Counterparties_Recovery_of_FMIs_Report.pdf

²⁹ "Guidance on central counterparty resolution and resolution planning" <http://www.fsb.org/gcrwp-content> (5 July 2017).

³⁰ "Key attributes for effective resolution regimes for financial institutions" <http://www.fsb.org/gcrwp-content> (October 2014).

³¹ <http://eur-lex.europa.eu/legal-content>

³² <http://eur-lex.europa.eu/legal-content>

³³ Order execution venues include regulated markets, multilateral trading facilities (MTFs), and a new category of order execution venues introduced by the Directive and called organised trading facilities (OTFs). The Directive provides a very broad definition of OTFs, which includes all other organised forms of execution or trading that cannot be included in other categories.

("access right"). The "access right" under MiFIR means that CCPs must agree to clear trades executed on different trading platforms, as long as the latter meet the technical and operational requirements, including risk management requirements, laid down by the CCPs.

This principle was first set out in Article 7 of EMIR on over-the-counter derivatives subject to the clearing obligation. It has been reaffirmed and extended by this new European framework, and especially by MiFIR, to all financial instruments traded on trading venues.³⁴

A CCP must allow access to trading venues if certain access criteria specified in the regulatory technical standards are met.³⁵ The European legislator considered that for there to be genuine competition between platforms for trading derivatives, it was essential that these platforms should be able to access CCPs under transparent and non-discriminatory conditions. Non-discriminatory access to a CCP should mean that a trading venue has the right to non-discriminatory treatment in terms of how contracts traded on its platform are treated in terms of collateral requirements and netting of economically equivalent contracts and cross-margining with correlated contracts cleared by the same CCP, and non-discriminatory clearing fees.

4.3. Requirements under EMIR

4.3.1. The main requirements

In Europe, this concerns in particular, regarding CCPs, the European Market Infrastructure Regulation (EMIR), which entered into force in August 2012.

Given that the CCP becomes the sole counterparty of the clearing members, EMIR imposes very strict prudential requirements that the CCP must comply with.

With regard to financial risks first, which are the main risks for a CCP, EMIR has strengthened the risk management

requirements set out in the PFMI, which are only common minimum requirements:

- EMIR imposes a "Cover 2"³⁶ obligation (see above) for credit risk and liquidity risk for all EU CCPs. The PFMI only impose this requirement for the default of a single participant ("Cover 1"), except for CCPs that are systemically important in several jurisdictions or have a high-risk profile due to the complexity of the products they clear (e.g. CDS), for which "Cover 2" applies;
- the minimum confidence interval for the measurement of the exposures used to calculate the initial margins on over-the-counter derivative positions is raised to 99.5% in EMIR, compared to 99% for all products in the PFMI;
- EMIR sets quantitative minimum requirements for the liquidation period (two days for listed derivatives and repos, five days for over-the-counter derivatives) and the look-back period (12 months). The liquidation period is the period between the default and the end of the CCP's default management process, which serves as a time frame for measuring the potential exposure, i.e. the potential decline in the value of the collateral between its last valuation and its liquidation and adverse changes in the portfolio to be liquidated. This potential exposure is one of the parameters needed to calculate the initial margin. The look-back period is the timeframe of the range of data that the CCP uses to calculate its margins.

Lastly, the rules for assessing banks' exposures to CCPs in calculating capital requirements were reviewed by the Basel Committee in April 2014, with a new approach for determining these requirements when the CCPs are "qualified" ("Qualifying CCPs" or QCCPs). A QCCP is a PFMI-compliant CCP that is approved by the State in which the clearing member is established, and authorised by its supervisor to clear the products submitted

³⁴ Article 35.1 of MiFIR: "Without prejudice to Article 7 of Regulation (EU) No 648/2012, a CCP shall accept to clear financial instruments on a non-discriminatory and transparent basis, including as regards collateral requirements and fees relating to access, regardless of the trading venue on which a transaction is executed."

³⁵ Recital 38 of said Regulation: "To avoid any discriminatory practices, CCPs should accept to clear transactions executed in different trading venues, to the extent that those venues comply with the operational and technical requirements established by the CCP, including the risk management requirements. Access should be granted by a CCP if certain access criteria specified in regulatory technical standards are met."

³⁶ See Annex II of Technical Standard 153/2013. <http://eur-lex.europa.eu/legal-content>

for clearing. The Basel Committee reviewed the conditions for applying the leverage ratio to exposures of CCPs and of clearing members that provide indirect clearing services (client clearing). The initial margins received from clients can now be deducted from the leverage ratio denominator, as they are intended to reduce the risks borne by the clearing member.

Regarding the other main risks facing a CCP, namely the investment and custody risks:

- the investment risk is governed by strict rules: for example, under EMIR, CCPs are allowed to invest their financial resources only in cash or in instruments with a minimum market and credit risk, meeting the very specific regulatory conditions laid down in the technical standards;³⁷
- the custody risk is highly mitigated by the obligation, where possible, to deposit the financial instruments given as margin or contributions to the default fund with a CSD or a central bank responsible for ensuring the full protection of these instruments and their rapid availability for the CCP, or failing that, a credit institution with a low credit risk.

A CCP can outsource some of its functions. However, a CCP cannot outsource risk management unless such outsourcing is approved by the competent authority.

With regard to their organisation, EMIR requires CCPs to have governance arrangements that are documented in a comprehensive and detailed manner. In addition, the CCP must ensure a clear separation between the hierarchical organisation of risk management and that of other activities. Each CCP must have a board of directors, of which at least one third of the members are independent. The role of the board of directors must be clearly defined and its activities and meeting minutes made available to the regulators. In addition, a risk committee that is independent from the governing

bodies must be set up. In order to mitigate the risk of conflict of interest, shareholders and members with qualifying holdings in the CCP must be clearly identified and written organisational and administrative rules must be established.

A central counterparty must also have participation requirements, transparent activity reporting, and separate records and accounts per clearing member.

With regard to the recovery and resolution of CCPs, a European Regulation is currently being drafted, based on and consistent with international workstreams and the international principles³⁸ established in this area.

4.3.2. Accreditation and supervision of central counterparties

Under EMIR, each Member State designates the competent authority or the authorities responsible for carrying out the tasks laid down in the Regulation (Article 22) and notifies ESMA accordingly. If more than one authority is designated, the Member State should clearly indicate the respective roles of each of the designated authorities.

However, only one of the designated authorities will be delegated responsibility for coordinating cooperation and information exchange with the Commission, ESMA, the competent authorities of other Member States, EBA³⁹ and central banks. In France, the Banque de France fulfils this role.

EMIR has established the processes for authorising and supervising CCPs with the establishment of colleges⁴⁰ made up of ESMA, a non-voting member, the regulator(s) notified as competent authority to ESMA, the competent authorities responsible for the supervision of (i) clearing members established in the three Member States making the largest overall contribution to the CCP default fund, (ii) trading platforms with which the CCP has established links, (iii) central counterparties with which the CCP has interoperability agreements,

³⁷ The PFMIs stipulate that pre-funded financial resources (i.e. the combination of initial margins and default fund contributions) must at least cover the default of the participant with the largest exposures (Cover 1). This requirement is stricter for systematically important CCPs or CCPs that clear complex products: pre-funded financial resources must cover the largest aggregate exposure caused by the default of any two participants (Cover 2).

³⁸ "Guidance on central counterparty resolution and resolution planning," <http://www.fsb.org/wp-content> (5 July 2017).

³⁹ European Banking Authority.

⁴⁰ Article 18 of EMIR EU Regulation No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties and trade repositories.

(iv) central securities depositories with which the CCP has ties, and (vi) central banks of issue of the currencies most relevant to the cleared instruments for each CCP.

The creation by EMIR of colleges (see Chapter 18 for details) echoes the requirement of cooperation between authorities in the oversight and supervision of CCPs recommended by the PFMI (see Responsibility "E"). Many authorities with different mandates, reflecting different facets of financial stability (central banks, market authorities, prudential authorities), have an interest in the proper functioning of CCPs. This is why the functioning of the colleges as envisaged by EMIR provides for coordination between the national authorities, whose main task is to ensure that the CCPs comply with all regulatory requirements, and the "relevant authorities", which are also members of the college, can be consulted if necessary and ask the national authorities for additional information. ESMA, a non-voting member of the EMIR colleges, is in charge of the convergence of supervision, in particular through the peer reviews it conducts on the functioning of the colleges.

As part of the re-authorisation of a CCP under EMIR's provisions, an assessment is performed; this assessment is in addition subject to an annual review by the competent national authorities.

Regulatory changes to the CCP supervision framework came into force on 1 January 2020 (EMIR2). This was the result of several observations:

- the concentration of clearing services in a limited number of CCPs with, at the same time, an increase in cross-border activity: the current system is essentially based on the authority of the country of origin;
- diverging practices in the oversight of CCPs in the European Union, which could create a risk of regulatory and prudential arbitrage for both CCPs and their participants;

- the role of central banks as issuers of money, which is not sufficiently reflected in the current colleges of EU CCPs.

The revised version of EMIR addresses these findings, firstly by affirming ESMA's coordinating role in the supervision of EU CCPs.⁴¹ By 1st January 2021, ESMA must prepare a technical regulation to standardise interpretations of Articles 15 (extension of activities and services) and 49 (changes to the models). It may be invited to participate in on-site inspections by national authorities and will provide guidance on reviews and evaluation processes to national authorities (Article 21(6)). In terms of powers, under Article 23a an ex-ante ESMA opinion is mandatory with regard to 12 EMIR articles before a national authority⁴² can finalise its decisions. Any other decision may be submitted on a voluntary basis. ESMA may issue guidelines and recommendations if it finds a lack of convergence or consistency in the practices of the competent national authorities.

Within ESMA, a new permanent body dealing with EU and third-country CCP issues is established: the CCP Supervisory Committee. For CCPs established in the European Union, the Supervisory Committee is empowered to conduct European stress tests and promote exchanges between authorities in particular. For third-country CCPs (see below), the committee draws up all ESMA supervisory decisions. In general, it prepares draft decisions (taken by simple majority, with the casting vote going to the Chair in the event of a deadlock) and submits them to ESMA's Board of Supervisors for approval.

4.3.3. Recognition of third country CCPs

Lastly, EMIR allows CCPs from third countries to provide clearing services in the European Union. A CCP established in a third country may provide clearing services to clearing members or trading venues established in the European Union only if it is recognised by ESMA, following a

⁴¹ ESMA will act "with a view to building a common supervisory culture and consistent supervisory practices, ensuring uniform procedures and consistent approaches, and strengthening consistency in supervisory outcomes, especially with regard to supervisory areas which have a cross-border dimension or a possible cross-border impact".

⁴² Articles 7 (access to a CCP); 8 (access to a trading venue); 14 (authorisation of a CCP); 15 (extension of activities and services); 29 (record keeping); 30 (qualifying holdings); 31 (information to competent authorities in the event of a change in governance); 32 (assessment in the event of a change in governance); 33 (conflicts of interest); 35 (outsourcing); 36 (conduct of business rules); and 54 (approval of interoperability agreements).

procedure laid down in Article 25 of EMIR. Thus, a CCP wishing to be recognised must provide ESMA with a file containing all the required information (defined in the technical standards). ESMA has 30 days to review the completeness of the application and then 180 days to decide on its approval.

Four conditions must be met for ESMA to recognise a third country CCP:

- the European Commission must have adopted an implementing act stating that CCPs from the jurisdiction in question are subject to a supervisory regime and risk management requirements equivalent to those laid down by EMIR;
- the CCP must be authorised in its country of origin, and must fully meet the regulatory requirements applicable in that jurisdiction;
- ESMA must have signed a cooperation agreement with the competent authorities of the country of origin of the CCP establishing, *inter alia*, arrangements for the exchange of information and the coordination of oversight activities;
- the CCP must be established or authorised in a third country that is considered as having equivalent systems for anti-money laundering and combating the financing of terrorism to those in force in the European Union.

In addition, before deciding definitively on an application for approval, ESMA must formally consult European authorities to ascertain their position on the application (the opinions issued by these authorities are not, however, binding). This includes the following authorities: (i) the competent authorities of the Member States in which the CCP wishes to provide clearing services, (ii) the competent authorities of the three Member States whose financial institutions are, or are anticipated to be, the largest contributors to the CCP's default fund, (iii) the competent authorities responsible for

the supervision of trading venues located in the EU and which the CCP wishes to serve; (iv) the competent authorities responsible for monitoring CCPs the third country CCP has interoperability agreements with, (v) the central banks of the Member States in which the CCP intends to provide clearing services, or in which a CCP is established with which the third country CCP has entered into an interoperability agreement, (vi) the central banks of issue of the most relevant European Union currencies of the financial instruments cleared or to be cleared.

As at 20 September 2020, 34 third-country CCPs had been recognized by ESMA⁴³. With Brexit and the United Kingdom's withdrawal from the European Union on 31 January 2020, the United Kingdom will become a third country after the transition period provided for by the withdrawal agreement comes to an end on 31 December 2020. After that date, UK CCPs will be recognised in the European Union under the third-country regime, a decision that ESMA took by anticipation on 28 September 2020.

While the mechanism for recognising third country central counterparties developed by EMIR relies entirely on third country regulation and oversight, most of these countries consider third country central counterparties to be systemically important infrastructures and subject them to enhanced supervision. The initial approach of EMIR could be regarded as a model of mutual trust, but the EU would have been exposed to risks if it had remained the sole jurisdiction to rely so heavily on the regulation and authorities of third countries.

It is in this context, the revision of EMIR (EMIR2) allowed the adoption of a risk-based approach, since third country counterparties that are systemically important for the European Union will be subject to direct and reinforced oversight by the European authorities, while at the same time a requirement that CCPs of substantial systemic importance should be located in

⁴³ <https://www.esma.europa.eu/press-news/esma-news/esma-updates-list-recognised-third-country-ccps>

the European Union is also foreseen (see Chapter 17).

The EMIR2 regulation provides for an overhaul of the authorisation architecture for third-country CCPs. Decisions on the equivalence of third-country regulations are retained in principle but this may be reviewed as ESMA is responsible for monitoring regulatory developments in jurisdictions that benefit from equivalence decisions.

In contrast to the situation since 2012, the decision to authorise a third-country CCP to provide services in the European Union will now be based on more or less demanding criteria, depending on the CCP's systemic importance for the European Union. The CCP recognition process will therefore differ depending on whether the CCP is considered non-systemic or of limited systemic importance (in which case, recognition will mainly be granted on the basis of the equivalence decision of the regulatory framework), or systemically important (in which case, in addition to the equivalence decision, the third-country CCP will have to demonstrate that it complies with EMIR provisions, unless otherwise justified by "comparable compliance").⁴⁴ Furthermore, once a CCP is recognised as being systemically important, it becomes subject to direct supervision by ESMA, which then has the power to request information and to carry out documentary and on-site inspections. ESMA will also have the power to impose penalties, ranging from administrative fines to a withdrawal of authorisation.

The classification of a third-country CCP shall be reviewed each time it extends its activities or services, and at least every five years. It shall be based on the nature, size and complexity of the business, the effect of a downturn in the European financial markets, the holding structure, substitutability and interdependencies with other market infrastructures. Third-country CCPs must pay fees to ESMA to enable them to carry out their duties. A third-country CCP college has also been established with the aim of

sharing information with the competent European national authorities. It can ask for an item to be added to the Supervisory Committees' agenda.

Lastly, ESMA may deny recognition of so-called "substantially systemically important CCPs". The fact that these types of entities may be located outside the European Union could threaten the European financial stability. The procedure is as follows: ESMA would recommend that the Commission decide to refuse recognition. This recommendation would have to be justified by (i) showing that direct EMIR-related supervision would be insufficient to adequately reduce risks (such as potential conflicts of interest between the home supervisor and ESMA, which could lead to the CCP taking decisions contrary to EU financial stability, particularly in a crisis situation), and (ii) a cost-benefit analysis.

Once the European Commission has decided to deny recognition to a CCP, this CCP will no longer be able to offer its services in the European Union, unless it will relocate its activities and request approval as an EU CCP. As called for by the European Commission, the ECB and the ESRB, ESMA should assess the substantially systemic nature of LCH Ltd and Ice Clear Europe in the course of 2021.

With Brexit, EMIR2 and the associated technical standards have taken on particular importance for European financial stability. Given that certain CCPs located in the United Kingdom are systemically important for the EU (see below), it is essential that post-Brexit, they continue to provide all relevant disclosures to the European authorities and, if necessary, submit to their direct supervision.

5. The main CCPs in Europe

The Box 4 below describes the clearing activity, by business segment, of the main CCPs in Europe.

⁴⁴ Under "comparable compliance", certain CCPs considered systemically important for the EU may be deemed compliant with EMIR requirements without strictly observing its provisions. The scheme's functioning is to be clarified by the European Commission through a delegated act to be published at the end of 2020.

Box 4: Statistical breakdown of the main central counterparties clearing instruments denominated in euros and of cleared assets¹

T1: Credit derivatives segment: Open interest – EUR-denominated CDS, October 2019

(billions euros; share in percentage)

CCP	Open Interest, Euro-denominated CDS indices (iTraxx Europe, Crossover, HiVol, SenFin)	Market share
ICE Clear Europe	205	33
ICE Clear Credit	298	49
LCH SA CDSClear	110	18

Source: Public information, CCP websites.

T2: OTC interest rate derivatives segment: Open interest - OTC interest rate derivatives, October 2019

(billions euros; share in percentage)

CCP	Open interest OTC interest rate derivatives (all currencies, USD equivalent)	Market share	Open interest OTC interest rate derivatives (in euro)	Market share
LCH Ltd (Swapclear)	361.6	89	88.0	87.0
CME US	17.4	5	0.6	0.5
JSCC	14.4	4	12.7	12.5
EurexOTC	12.7	3	0	0

Source: CCP websites.

T3: Listed interest rate derivatives segment: annual cleared volume by CCP

(number of contracts in 2016; share in percentage)

CCP	STIR (all currencies)	Market share	LTIR (all currencies)	Market share
Eurex Clearing	72,319	0	628,386,613	90.6
ICE Clear Europe	533,336,315	98.8	65,514,464	9.40
LCH Ltd (CurveGlobal)	6,619,742	1.2	15,156	0

Source: public information, CCP websites.

¹ In February 2019, LCH Group migrated its euro-denominated repo clearing activity from the UK CCP, LCH Ltd, to the French CCP, LCH SA. Repo clearing statistics following these market movements are not currently available, but are expected in the course of 2020.

