All the Ins & Outs of CCPs
Artist information:

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(Untitled, 1996, poured aluminium with alkyd resin)
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Introduction

This brochure, entitled ‘All the Ins and Outs of CCPs’, is the result of the project that was informally known as ‘CCPs for Dummies’. This information brochure was written for everyone who occasionally reads or hears the term ‘central counterparty (CCP)’ in the course of their work and would like to know more about what a CCP is and does. The aim is to communicate as much information as possible about CCPs, including how they operate as well as the benefits and risks attached.

To provide more in-depth insight, several important current topics are also discussed, such as the role a CCP can play in limiting the impact of a new financial crisis and possible forms of cooperation between CCPs.

The Dutch Central Bank (De Nederlandsche Bank / DNB) is closely involved with CCPs on several fronts. Dutch CCPs and their clients can maintain a money account with DNB. In addition DNB, together with the Netherlands Authority for the Financial Markets (Autoriteit Financiële Markten / AFM), supervises the CCPs that are established in the Netherlands and is responsible, together with the other relevant foreign supervisors, for the supervision of foreign CCPs that are active in the Netherlands. Finally, DNB is an active participant in the many lively debates that are currently taking place about CCPs and their increasingly prominent role in certain financial markets.

The world in which CCPs operate is riddled with jargon, abbreviations and acronyms. We have tried to explain these as well as possible in this brochure. However, if a certain term or explanation remains unclear to you, please let us know so that we can make improvements in a next version.
CCP stands for central counterparty, sometimes also referred to as a central counterparty clearing house. A CCP plays a role in the settlement of securities and derivatives transactions, particularly those carried out on a trading venue. One key characteristic of these transactions is that the obligations are settled at a later time than that at which the actual trade took place. If, in the intervening period, either of the two parties is unable to meet its obligations, this could cause problems for the other party. To prevent this negative spiral, the CCP positions itself between the buyer and seller as soon as the transaction has been executed. The CCP thus becomes the new counterparty of both the buyer and the seller – hence the name ‘central counterparty’. As a consequence, the relationship between the two original trading parties no longer exists.

After becoming the new counterparty of both the buyer and the seller, the CCP proceeds to clear the transaction. The CCP clearing activity consists of administering, netting and guaranteeing. The parties that trade in securities and/or derivatives often conclude a large number of transactions on a single day, while the same party can act both as buyer and seller of the same security or derivative. The CCP records all these transactions in its administration, so that it knows exactly who has entered into which obligation. At the end of the trading day, the CCP nets all the transactions that a specific party has carried out in the same security or derivative, thus creating an open position. This netting process greatly reduces the number of transactions and the total value to be settled. The CCP guarantees the settlement of the netted positions. This means that the settlement of transactions can proceed even if one of the original parties runs into problems and is no longer able to meet its obligations.

At present, not all securities and derivatives transactions are cleared by CCPs. The buyer and seller can also opt to settle transactions that do not go through a stock exchange between themselves. This is called bilateral settlement or clearing. In the case of bilateral settlement, transactions in the same security with the same counterparty can also be netted, but only if this is explicitly agreed between the buyer and seller. Counterparties who opt for bilateral clearing are themselves responsible for administering and settling the transactions. With bilateral clearing, parties generally benefit less from netting opportunities and also have no guarantee that their counterparty will meet its obligations. Figure 1 illustrates the difference between CCP clearing and bilateral clearing. The figure assumes eight parties, where each party has carried out transactions with one or more of the other seven parties.
A CCP enables a safer and more efficient settlement of securities and derivatives transactions. By netting and guaranteeing transactions, the CCP reduces the risk for the buyers and sellers. This makes the market more attractive for investors. The more investors a market attracts, the more liquid it will be; and this liquidity, in turn, attracts even more investors.

Despite this obvious advantage, there are still securities markets that operate without a CCP. This is because of the costs attached to the services of a CCP. As soon as a party can no longer meet its obligations, the CCP takes over these obligations. In order to fulfil this role, the CCP requests the transacting parties to deposit collateral. As a consequence, the assets used as collateral are temporarily unavailable for operational purposes. In addition, the CCP requires an extensive and robust risk monitoring system. The parties that make use of a CCP’s services pay for the implementation and maintenance of this system. These payments can essentially be seen as a kind of risk premium. The upshot is that a securities market will only start using a CCP if the benefits from the increased number of transactions as a result of safer and more efficient securities and derivatives transactions are greater than the collateral and risk premium costs.

During the crisis, CCPs proved to be of crucial value in diverse financial markets. For example, the collapse of Lehman Brothers in 2008 did not lead to the bankruptcy of any other trading and clearing members on the trading venues in which Lehman was involved. This was largely attributed to the intervention of several CCPs. Before the financial crisis, CCPs only played a limited role in certain derivatives markets, such as the market for credit derivatives. In these markets it was customary practice for counterparties to conclude and settle the contracts between themselves. As a result, the numerous parties and supervisors lacked a clear overview of the exposures and the attendant risks. When the crisis broke out, some of these parties were no longer able to meet their obligations and dragged other parties down in their wake. The G-20 subsequently decided in 2009 that these derivatives contracts (also known as ‘OTC derivatives’) should be standardised as far as possible by no later than the end of 2012 so that they could be traded on a trading venue. Furthermore, they decided that CCPs should be involved in the settlement of the contracts and that all
mutually concluded derivatives transactions had to be reported to a ‘trade repository’. This deadline was not met, but the use of CCPs will certainly increase greatly from 2013.

As CCPs play an increasingly important role in the infrastructure of the financial markets, it is crucial to ensure that CCPs can genuinely offer the security that is expected of them. One key component for providing that security is the CCP’s risk management system. For this reason, CCPs must comply with various sets of rules and are also subject to supervision. Though these measures go a long way towards containing the risks, there is always a small chance of a CCP failing in extreme conditions. For this reason, under the new proposals of the Basel Committee on Banking Supervision, banks must block capital if they have an exposure to a CCP. In stipulating that a bank’s exposures to its counterparties must remain below a certain percentage, this rule aims to prevent a bank from becoming too dependent on one or two parties. At present, exposures to a CCP are not yet subject to this rule.

This chapter described in a nutshell what a CCP is, what it does, what the benefits are, why CCPs are not yet used by all markets and the main policy topics currently under discussion. The remainder of this brochure will consider these subjects in greater detail. In order to gain a better understanding of the mechanism and role of CCPs, let’s first take a step back and look at the path of a stock exchange order and the parties involved in the transaction.
In the previous chapter we saw that a CCP is a party whose services can be enlisted to assist with the clearing of securities and derivatives transactions. A security is an impersonal right to capital that is tradable on the stock exchange. Examples are bonds, equities, warrants and claims. A financial derivative is a financial contract whose value depends on e.g. one or more underlying values, an interest rate or the occurrence of a factual event. Examples of financial derivatives are options, forward contracts and swaps. A CCP does its work after a transaction has been completed and before the securities or derivatives and the money are credited or debited to the buyer’s and seller’s accounts. This chapter looks at the processes that take place before and after the CCP provides its services.

**How a transaction comes about**

An investor can opt to have an envisaged transaction carried out in two ways. One possibility is to have the order executed on a trading venue. A trading venue is a central marketplace where the demand for and supply of securities and derivatives come together and where information about the price of the transaction is, in principle, publicly available. The second option is to look for one or more counterparties outside the trading venue. In this case, the investor makes use of the private or over-the-counter (OTC) market. As an OTC transaction is effected between two market participants, no public information is available about the transaction price. The OTC market is used by parties who, for instance, want to place a large bond order or conclude a special derivatives contract. Therefore, most CCPs clear transactions that were executed on a trading venue. This chapter will take a closer look at this process. But OTC transactions in securities and derivatives can also be carried out via a CCP. Chapter 4 about CCPs for derivatives deals with this in greater depth.

As soon as the investor has sent his order to the trading venue, the trading venue starts looking for a counterparty. Once the counterparty has been found, the trading venue executes the order. This results in one or more trades for the buyer and the seller, depending on whether the order can be executed in a single trade. The trading venue sends the seller and the buyer confirmation of their transaction(s). The CCP also receives these data and enters them into its administrative system (Figure 2). At the end of the day, the CCP nets all transactions per party and per security, thus creating the open position.
Trading and clearing members

The path of an order as shown in Figure 2 is a simplified version; in reality, more parties are involved. In order to send an order to a trading venue, a party must establish a connection with a trading member. There are two types of trading members: brokers and dealers.

A broker is a party who carries out orders on the instructions and at the expense of another party. A buyer or seller who does not have access to a trading venue, but wants to trade on it, will enlist the services of a broker. A dealer is a trading member who exclusively trades at his own risk and expense. Some parties act both as brokers and as dealers. This dual role, however, is only permitted if the two roles are kept entirely separate.

Just as investors need a trading member to gain access to a trading venue, trading members who do not have their own connection with a CCP must also engage an intermediary, who is known as a ‘clearing member’. The most important task of a clearing member is to ensure that its trading members fulfil their own and their clients’ delivery or payment obligations (Figure 3).

The transactions have now been executed on the trading venue and administered and netted by the CCP. However, the buyer does not yet have the securities or the derivatives and the seller does not yet have the money. In other words, the transaction must still be
settled. The settlement consists of the actual delivery of the financial assets and the payment of the accompanying settlement amount. The CCP guarantees that the trade will be settled right up until the actual settlement has taken place. The settlement process for securities and derivatives is not the same and is therefore described separately.

**Settlement of a securities transaction**

The settlement of securities takes place on the securities account, also called the custody account, which is held at the central securities depository (CSD). The CSD maintains a special system for this purpose: the securities settlement system (SSS). An SSS is a system for transferring securities. Usually, the clearing member has its own account at the CSD and is thus also a settlement member. The settlement of the securities transaction will then take place on the clearing member’s account at the CSD. A clearing member who does not maintain its own account in the CSD will use the services of a settlement member for the settlement.

Securities transactions concluded on a trading venue must be settled a fixed number of trading days after the execution of a trade. In most European and American countries the settlement date is three trading days after the trade date. Germany is an exception to this rule: the arrangement here is that transactions are settled after two trading days. Other European markets will ultimately also switch to a settlement period of two trading days, as this will be compulsory under new European legislation that is currently being prepared. The same settlement period can be used for OTC transactions, but this is not compulsory. In principle, any term is possible for OTC transactions, as long as the SSS accepts the agreed settlement period.

Before the settlement date, the CCP sends the instructions for the securities and money to be delivered (Figure 4). For each clearing member, this entails one delivery or one receipt per security. In order to carry out the instructions, most SSSs seek contact with the central bank where the settlement members and the CCP maintain their money account for the settlement of the settlement amount. After payment of the purchase sum, the SSS ensures that the securities change owners on the custody account at the CSD. Once the securities and the money have been transferred, the CSD sends confirmation to the settlement member.

The process of entering the securities and the money is repeated at the settlement, the clearing and the trading member. Ultimately, the trading member enters the securities and accompanying money transactions into the
account that the investor maintains with its institution and sends confirmation of these entries. The investor’s investment decision has thus been executed.

**Settlement of a derivatives transaction**

There is no central depository for derivatives accounts. Instead, each CCP administers the derivatives contracts on the account of its clearing members. At the end of the trading day, the CCP will settle the netted purchase sums and sale proceeds (the ‘premiums’) with the clearing member. The clearing members record which derivatives positions belong to which trading members, though some CCPs also maintain specific administrative records for each trading member. The trading member manages the accounts that investors maintain with that member and enters the traded derivatives and the accompanying sums of money into these accounts. The investor sees the result at the beginning of the next trading day.

In the case of derivatives, the investor purchases a right and/or an obligation which continues to exist until the investor performs an opposite derivatives transaction or exercises his right, or until the term of the derivative expires. As long as the derivatives contract still exists, it remains in the CCP’s administration and the CCP guarantees definite settlement. The clearing member deposits collateral with the CCP for this purpose.

However, a CSD can still be involved in the derivatives settlement process in two ways. Firstly, the CCP maintains any collateral that is deposited in the form of securities with the CSD. Secondly, the CSD is involved in the settlement process when the settlement of a derivative results in a delivery of securities.
3 Roles of CCPs

As we saw in the previous chapter, once a trade has been executed it still takes a while before a trading party actually obtains possession of the securities, the derivatives or the money. All activities that are carried out in the intervening period form part of the clearing process. A CCP is responsible for the implementation of this clearing process, which consists of the following activities:

1. Administering stock exchange transactions;
2. Guaranteeing the settlement of stock exchange transactions;

1. Administering stock exchange transactions
Immediately upon receiving the trades from the trading venue, the CCP administers the trades in its system. Formerly, this took place at the end of the trading day and sometimes several times during the day. Now, however, most CCPs receive the trade details in real time after execution. The number of trades executed on a single trading day can be enormous. In order to verify that the recorded trades are correct, the CCP sends the clearing members a statement of all transactions recorded on their behalf for a final check. The clearing member can request the assistance of its trading members for this purpose.

2. Guaranteeing the settlement of stock exchange transactions
The CCP guarantees the settlement of the trades executed on the trading venue. To this end, the CCP positions itself between the buyer and the seller, so there is no longer a direct relationship between the two parties. The CCP thus assumes the risk that the buyer and/or the seller can no longer meet their obligations. There are two methods for this. The first method entails that the buyer and the seller conclude an agreement for the purchase/sale of a security or a derivative. As soon as the CCP receives the details of this trade, it positions itself between the buyer and the seller. At that specific moment, the original bilateral agreement between the buyer and the seller is dissolved and replaced with two new contracts: one between the seller and the CCP and one between the CCP and the buyer. This process, where the original contract is replaced with two new contracts, is called novation. With the second method, the CCP immediately becomes the counterparty of the buyer and the seller at the time the trade is executed. In this case, no bilateral agreement is created between the buyer and the seller. This second method is called ‘open offer’. Both methods have the same result: the CCP becomes, as it were, the buyer of all sellers and the seller to all buyers, and has thus assumed the role of central counterparty.
3. **Netting stock exchange transactions**

Netting is the mutual settlement (with the approval of the involved market participants) of opposite positions in the same security until a single net position remains. This is known as the ‘open position’. When several market participants are included in the netting process, the procedure is referred to as multilateral netting. Buyers and sellers can also decide to net their mutual obligations between themselves. This is called bilateral netting. Figure 5 gives an example of the various forms of netting.

Multilateral netting usually leads to a smaller open position than bilateral netting.

A clearing house or clearing organisation can also administer and net transactions. These two terms are sometimes used as synonyms for a CCP, but they are not exactly the same thing. A CCP positions itself between the buyer and seller and guarantees settlement, whereas a clearing house or clearing organisation generally does not do this. In other words, a CCP is virtually always a clearing house, but a clearing house is usually not a CCP.

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**Figure 5 Example of transactions to be settled without and with netting**

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<thead>
<tr>
<th>No netting</th>
<th>Bilateral netting</th>
<th>Multilateral netting</th>
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<tr>
<td>CM A -&gt; CM C</td>
<td>CM A -&gt; CM C</td>
<td>CM A -&gt; CM C</td>
</tr>
<tr>
<td>CM A</td>
<td>CM B</td>
<td>CM B</td>
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<tr>
<td>CM B</td>
<td>CM D</td>
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<tr>
<td>CM C</td>
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<td>CM A</td>
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<td>CM D</td>
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CM = Clearing Member

*De figures indicate the number of securities or derivative contracts to be delivered.*
The use of a CCP offers buyers and sellers several advantages:
1. Risk reduction
2. Cost savings
3. Higher liquidity
4. Anonymity

Risk reduction
CCPs can help to reduce certain risks, most notably the counterparty risk and the operational risk. Counterparty risk is the risk of losses due to a counterparty failing to meet its obligations within the agreed period. Operational risk is the risk of errors in the internal operations leading to an unexpected loss. Examples are faults in automated processes or internal control processes, human error (e.g. mismanagement), and fraud.

A CCP reduces these risks for its participants by offering multilateral netting and by taking over and guaranteeing the transactions. Multilateral netting creates smaller open positions for parties, thus reducing the overall counterparty risk. The CCP’s guarantee is valuable for participants as the CCP is often more secure than an individual counterparty, which further reduces the counterparty risk. Clear proof that a CCP genuinely reduces the counterparty risk was provided in 2008 by the Lehman Brothers bankruptcy. At that time, the CCPs acted as an effective buffer, thus ensuring that the effects of the bankruptcy did not spread to other clearing and trading members.

The operational risk is reduced because the netting process means that the number of transactions to be settled is many times smaller than the number of trades executed. An additional consideration is that the use of a CCP often leads to standardisation of the settlement process. Both these developments reduce the risk of errors. If the settlement process can be automated, this risk is reduced even further, leading to an even smaller operational risk.

As CCPs help reduce risks, markets that use a CCP are usually safer than markets without a CCP. One key condition, of course, is that the CCP itself is a safe party. Chapters 7 to 10 describe the measures taken to ensure this is the case.

Cost savings
A second advantage of using a CCP is that it can produce cost savings. The most important cost saving is realised for the clearing member through the application of multilateral netting, which results in a lower risk. The lower risk means that the clearing member is required to maintain less collateral with the CCP than if
no netting had taken place. In addition, multilateral netting leads to a substantial reduction (sometimes more than 90%) of the number of transactions to be settled, so that market participants achieve a correspondingly large saving on the settlement costs. Furthermore, the guarantee of a CCP makes the risk management of trading parties more efficient. The CCP’s position as central counterparty improves the traders’ insight into the risk they run vis-à-vis their counterparties: they only need to monitor the creditworthiness and risk profile of the CCP, instead of that of all their counterparties. As the CCP also serves to reduce the operational risk, the risk management of a trading party becomes considerably less complex and therefore cheaper. For all these reasons, the use of a CCP leads to cost savings.

*More market liquidity*

A CCP offers traders an opportunity to trade more, thus boosting the liquidity in the market. The reason for this is that traders are bound to trading limits, which are based on the total sum of their open positions vis-à-vis counterparties. If a trader’s transactions are all conducted via a single CCP, all transactions are perfectly netted into a single open position, which is lower than in a situation involving several counterparties. This enables the trader to effect many more transactions within his trading limit. When a market is more liquid, traders are prepared to offer large market participants a smaller spread between the purchase and selling price. A smaller spread attracts more buyers and sellers, which further improves the liquidity of the market.

*Anonymity*

Finally, market participants often mention anonymity as an advantage of a CCP. As the CCP becomes the counterparty of both trading participants, they remain anonymous to their counterparty. The advantage of anonymity is that trading participants need not worry about the counterparty’s creditworthiness. They can trade with any other trading members. In addition, anonymity is extremely desirable in certain situations, for instance if a party suddenly needs to borrow a large sum of money or sell a large investment portfolio. This prevents a party who is already in a difficult position being hit harder due to the market getting wind of its predicament and turning against it. It should be noted, however, that parties can also obtain this form of anonymity on trading venues that have been specially set up for such orders.

*Costs of a CCP*

By administering, guaranteeing and netting transactions in securities or derivatives, a CCP plays an essential role in creating and maintaining a safe and efficient financial
market. Even so, there are trading venues where transactions are settled without the intervention of a CCP or clearing house. For each trading venue and its participants, the decision to set up a CCP is made on the basis of purely commercial considerations: the benefits of a CCP must outweigh the costs. Because it is the clearing members who bear the costs of the activities of a CCP. Usually, the costs consist of a one-off admission fee and a charge per cleared transaction. Sometimes, an annual subscription fee is charged on top of this. In addition, a clearing member is confronted with lost income due to the collateral it is required to deposit. The assets used as collateral are temporarily unavailable for normal business operations. The CCP asks its clearing members to deposit collateral because the CCP guarantees the settlement of the transactions. If a clearing member is unable to meet its obligations, the CCP can fall back on the collateral which is usually deposited in the form of cash or securities. The amount of required collateral depends on the risk profile of the clearing member’s portfolio as assessed by the CCP. The greater the risk, the higher the required collateral. Chapter 7 discusses the risk management of CCPs in greater detail.

Some markets do not have CCPs. There are various reasons for this. In smaller and less developed markets, for instance, the costs of a CCP may be considered greater than the benefits. Sometimes, there may not be enough participants in the market who meet the admission criteria or who can afford the operational costs of a connection with a CCP. These prospective clearing members will then decide against membership. A CCP would then be insufficiently able to mitigate the trading risk, as positions would need to be concentrated at a small number of clearing members. Markets without CCPs use bilateral clearing, which was for instance the case in Scandinavian markets until 2009.
CCPs have their origin in the derivatives market for the settlement of forward contracts. Forward contracts, which are also known as futures, are contracts for buying or selling a certain amount of goods or financial securities at a pre-determined time in the future at a price agreed upon at the time of concluding the contract. The period between the conclusion and settlement of the contract can be several months or even longer. During that period, the amount payable by one party to the other party can grow into a substantial sum. If the debtor goes bankrupt and is unable to settle, the remaining party is confronted with a loss. The solution to this problem was found in the creation of a CCP who could take over the obligation. As a result, the recipient party obtained a guaranteed receivable that was payable by the CCP instead of by the delivering party. At a later stage, CCPs were also created for securities and other types of derivatives.

**Securities versus derivatives clearing**
Investors use derivatives for various reasons: to reduce the risk of an investment portfolio, to speculate and/or to reconstruct an investment portfolio. An investor who wants to reduce his risk can transfer this risk to another party via a derivative. In this way, he can cover himself against a multitude of risks, such as bankruptcy, fluctuating prices of goods and securities, changing exchange or interest rates and risks arising from non-economic phenomena, such as the weather. The process of covering these risks is called hedging.

Another reason for entering into a derivatives contract is speculation. The investor expects a certain market development that he wishes to anticipate. An investor can do this by taking a position in the underlying value or by entering into a derivatives contract. The advantage of a derivatives position is that the same profit can be made with a lower initial investment. Speculation increases the risk of a portfolio. It is also possible to construct an artificial portfolio of shares and/or bonds with a mix of derivatives. This so-called synthetic portfolio is increasingly used for bond portfolios and by investment funds that want to track a certain stock exchange index.

Alongside the longer term of derivatives, there are other differences between securities and derivatives that lead to differences in the clearing activities of a CCP. For instance, the value of derivatives positions tends to be more volatile than that of securities positions. Both the longer term and the higher volatility lead to a greater counterparty risk, for which the CCP will demand more collateral. Further distinctions stem from the difference in the settlement process that was discussed in chapter 2.
The CCP settles the purchase sum for derivatives with the clearing members at the end of the trading day, but the definite settlement only takes place when the right is actually exercised — either during the term or on maturity. In the case of securities transactions, settlement takes place after a pre-arranged number of trading days by the CSD, usually on the instruction of the CCP. This means that a CSD is always involved in the settlement of a securities transaction. With derivatives this is only the case if the exercise or maturity of the derivative results in a delivery of securities. Another difference is that the CCP administers the derivatives positions itself, while in the case of securities positions, this is handled by the CSD.

**OTC derivatives**

OTC derivatives are traded between market participants, without the intervention of a trading venue. Of the total derivatives market, about ninety per cent consists of OTC derivatives and only ten per cent is traded on a trading venue. According to the Bank for International Settlements (BIS), the OTC derivatives market was worth USD 639 billion at the end of June 2012 in terms of the underlying value for which hedges had been bought (also known as: notional amount). There is a great variation in the hedges traded on the OTC market and a contract can be entirely tailored to the wishes of the party entering into the contract.

Most OTC derivatives concern hedges against interest rate risk, followed distantly by currency derivatives and credit default swaps. A credit default swap is a derivative that gives a buyer the right to a payment in the event of a loan default by a specified party or other credit event. In this way, investors insure themselves against the full or partial bankruptcy of a party or country by transferring the credit risk to the seller of such swaps.

Usually, the market value of the derivatives contract is zero at the start of an OTC derivative, as the investor wants to hedge a risk in respect of today’s situation. Depending on the market development, an OTC contract can subsequently acquire value in favour of one of the two counterparties, thus giving rise to counterparty risk. If an investor concludes a derivatives contract with a financial institution, this latter party will also want to hedge the risks it runs in respect of the contract. Financial institutions usually conclude these hedges between themselves on the interdealer market. The interdealer market amounts to slightly more than half of the total OTC market.
Call for CCPs for OTC derivatives

The development of the OTC derivatives market in the years prior to the financial crisis is considered to be one of the culprits of the crisis. For this reason, derivatives have attracted a lot of attention in recent years. In the period prior to the crisis, the market for OTC derivatives underwent explosive growth. Among other things, extremely complex credit default swaps were developed. After the onset of the financial crisis, it became clear that the management of the risks relating to these complex OTC derivatives was deeply flawed. As a consequence, doubts grew as to whether the companies that had sold these complex credit default swaps, such as the US insurance company AIG, would be able to meet their obligations. Their creditworthiness was downgraded and these companies came to be regarded as much more risky. As a result, they were obliged to deposit more and more collateral to cover their risks, until it came to the point that they were no longer able to deposit the required collateral. Various authorities had to intervene to prevent a domino effect.

The effect of the crisis was aggravated by the lack of transparency in the OTC derivatives market. The trade in these derivatives took place outside a trading venue and, as a rule, the transactions were cleared on a bilateral basis. Consequently, there was no clear overview over the exposures of the buyers and sellers of OTC derivatives, which made it very difficult for these market participants and the responsible authorities to estimate, price in and monitor all the risks as well as take adequate risk management measures.

With these developments in mind, the government leaders of the largest economies, united in the G-20, called for measures to make the OTC derivatives market safer and more transparent. This is to be achieved by ensuring, from 2013, that as many OTC derivatives as possible are traded on trading venues and by involving CCPs in the settlement of standard OTC derivatives contracts. Another proposed measure involved registering all derivatives contracts in transaction registers, also known as trade repositories, and increasing the capital requirements for bilaterally cleared derivatives positions. In addition, arrangements were made to monitor whether these measures were actually implemented and were sufficiently effective in improving the transparency in the market. The aim of this package of measures is to prevent a renewed concentration of risks at participants who are unable to bear them.

In the meantime, countries around the world have been busy implementing the G-20 measures in their legislation. It is important to minimise any differences among
countries in order to avoid arbitrage between the various jurisdictions. Not all decisions of the G-20 leaders have been implemented within the set timelines. The legislation on clearing and reporting obligations is complete and will take effect in Europe from March 2013. Meanwhile, the outlines for the capital requirement directive are ready.

**When can a CCP process an OTC derivative?**

The most important conditions for the processing of OTC derivatives by a CCP are straight-through processing (STP), the possibility to wind down or transfer positions and sufficient trading volume (i.e. liquidity) in the derivative. STP means that fully automated processing is possible. To achieve this, all details of the derivatives contract must be standardised. This is a considerable task because derivatives such as a credit default swap can differ in respect of a great many variables. To enable the clearing of these derivatives by a CCP, certain factors must at the very least be standardised, such as the frequency of exchanging premium and collateral, the term, the currency, and the definition as to when one party can demand payment from the swap.

Another requirement for the processing of OTC derivatives by a CCP is that the instrument must be sufficiently liquid. A certain degree of liquidity is necessary to determine a reliable price, so that the CCP can always determine the value of the derivative, and thus calculate the amount of required collateral. Illiquid derivatives whose value can only be determined by means of specialised knowledge can therefore not be processed by a CCP. Sufficient liquidity is also required in order to sell positions in the event that a clearing member can no longer meet its obligations. To achieve this, a CCP also has the option to oblige its clearing members to bid for positions of a clearing member who has run into problems. One example of an illiquid derivative is a credit default swap that pays out upon the bankruptcy of a small enterprise.
5 Dutch CCPs

The CCP for the securities transactions that are executed on the Amsterdam trading venue NYSE Euronext is LCH.Clearnet SA (Clearnet SA). This is also the CCP for the securities transactions of NYSE Euronext’s other European stock exchanges, namely Brussels, Lisbon and Paris. Clearnet SA is established in Paris and has branches in other cities, including Amsterdam. Together with the London-based LCH.Clearnet Ltd (LCH), Clearnet SA forms the LCH.Clearnet Group Ltd. LCH is the CCP of the London Stock Exchange and is also the parent of SwapClear, the largest CCP for OTC interest rate derivatives in the world.

Clearnet SA is currently also the CCP for all derivatives exchanges of NYSE Liffe on mainland Europe. This concerns the derivatives exchanges of Amsterdam, Brussels, Lisbon and Paris. With derivatives, the CCP sees to the settlement of the purchase sum as well as any value differences by debiting or crediting the clearing members’ account with DNB. The CCP will have received a special power of attorney for this purpose. As soon as the exercise of a derivatives contract results in a delivery of Dutch securities, Clearnet SA sends the relevant instructions to Euroclear Netherlands.

NYSE Euronext has cancelled its contract with Clearnet SA for the clearing of continental derivatives. The original intention was for the London-based clearing house NYSE Liffe Clear, a subsidiary of NYSE Euronext, to take over the clearing of these derivatives from Clearnet SA from 2014. However, to make this possible, the services of NYSE Liffe Clear needed to be expanded. This is because NYSE Liffe Clear currently administers and nets the derivatives transactions of the London segment, but has outsourced its transaction guaranteeing and risk management activities to LCH. NYSE had initiated a project with a view to expanding its clearing house into a fully-fledged CCP, but this project was aborted following the takeover bid by Intercontinental Exchange (ICE) for NYSE Euronext and the accompanying plans to divest the
European continental securities and derivatives stock exchanges after the takeover. Eventually, a new contract with Clearnet SA has been agreed.

Though the Amsterdam stock exchange makes use of a French CCP, there are two other CCPs based in the Netherlands: the European Multilateral Clearing Facility (EMCF) and Holland Clearing House (HCH). Since its incorporation in 2007, EMCF has developed into the largest CCP for securities clearing in Europe. However, after the introduction of interoperability, which is discussed further in chapter 12, EMCF’s position appears to have become slightly less dominant. EMCF clears the securities transactions carried out on the stock exchanges of Denmark, Finland and Sweden as well as on a number of other European trading venues, including the Dutch-based TOM (The Order Machine). EMCF takes care of the settlement at Europe’s most important CSDs, including Euroclear Bank and Clearstream Luxembourg, the international CSDs or ICSDs. Not all (I)CSDs accept EMCF as an account holder. In the markets where EMCF is not allowed to maintain an account of its own in the CSD, it must make use of a settlement member.

On 1 July 2011, HCH started up as a CCP for the derivatives transactions executed on the Dutch TOM platform. As yet, HCH only clears derivatives transactions of Dutch shares. TOM, and therefore also HCH, intend to expand their activities in the future to include several derivatives contracts based on shares and other underlying values from other countries.

Alongside Clearnet SA, EMCF and HCH, two other foreign CCPs are active in the Netherlands. The first is EuroCCP, which clears transactions executed on the Dutch MTF NYSE Arca, a trading venue for trading in the most liquid shares of thirteen European markets and the United States. EuroCCP has its registered office in London and was set up in 2007 as a wholly-owned subsidiary of The Depository Trust & Clearing Corporation, the US CCP for securities and CSD. The other foreign CCP active in the Netherlands is the German-based European Commodity Clearing (ECC). ECC was established in 2006, is based in Leipzig and takes care of the clearing as well as the (physical) delivery of stock exchange and OTC transactions in natural gas, electricity and coal for a number of stock exchanges in Europe. In this capacity, ECC clears and settles the forward contracts for electricity and natural gas that are traded on the Amsterdam-based derivatives stock exchange for energy trading, the European Energy Derivatives Exchange N.V. (ENDEX). In addition, EEC has a connection with the Netherlands Emissions Authority for the clearing and settlement of the trade in carbon and nitrogen dioxide emissions rights.
Chapter 3 demonstrated that using a CCP reduces the counterparty risk and the operational risk. But it does not entirely eliminate these risks. Another risk that does not completely disappear as a result of the use of CCPs is the legal risk which can result from e.g. unclear contractual arrangements or contractual disputes. Moreover, the use of a CCP also gives rise to a new risk: concentration risk. This chapter looks at the most important risks relating to CCPs, namely the concentration risk and counterparty risk.

Concentration risk
Due to the increasing use of CCPs for the settlement of securities and derivatives, the counterparty risk is concentrated at the CCPs and the clearing members. A CCP that acquires a central position in the market soon becomes a crucial, or ‘systemically important’, party within the financial system. A systemically important CCP that runs into problems could inflict major financial damage on the clearing members, trading venues and other market participants, thus triggering a domino effect. To limit this concentration risk, CCPs must have a risk management system in place and adhere to certain rules. Compliance with these requirements is supervised. Chapters 7, 9 and 10 take a closer look at this.

Incidentally, concentration not only occurs with CCPs, but also with clearing members. Several large global banks and traders have built up a dominant position as clearing members, particularly in the derivatives market. Clearing members run a greater risk of getting into trouble than CCPs. A CCP normally takes care of both sides of a transaction, i.e. both the buying and selling side, and therefore in principle has no open positions at the end of the day. By contrast, a clearing member often only deals with one side of the transaction, so that at the end of the trading day it has open positions in (almost) all securities in which its trading members have carried out trades. The concentration with a small number of CCPs and with large clearing members exacerbates the concentration risk.

The concentration risk can be reduced by expanding the number of CCPs. One disadvantage is that this will lead to a greater demand for collateral than when the clearing is centralised in a single CCP. The problem of the extra demand for collateral can be solved by allowing CCPs to connect with each other, i.e. by allowing them to become interoperable. Chapter 12 explains interoperability and the risks associated with this solution.

Since the calls for action from the G-20, the number of CCPs has increased. Several Asian countries, including
Hong Kong, Japan, South Korea, Singapore and India, have each created their own local CCP for OTC derivatives. Australia and Canada are considering following this example. However, such initiatives will hardly mitigate the current level of concentration risk, as these markets still make little use of CCPs for the settlement of their OTC derivatives.

**Counterparty risk**

By netting and guaranteeing transactions, a CCP reduces the risk for buyers and sellers that their counterparty will partly or wholly default on its obligations. However, the counterparty risk is not entirely eliminated, as the CCP depends on its clearing members for the fulfilment of its obligations. If a clearing member partly or wholly defaults on its obligation, the CCP must be able to take it over. A CCP which, despite its risk management, fails to do so constitutes a counterparty risk for other clearing members.

Participants who use a clearing member for their connection to a CCP also run a counterparty risk in respect of this clearing member. This counterparty risk can be reduced by applying asset segregation, which entails that the positions and the collateral of a trading member are separated from the assets of the clearing member. With OTC derivatives, it is even possible to segregate the positions and collateral for each individual end investor. This takes place at the request of the investor and is called client clearing. Client clearing ensures that if one of the clearing members declares bankruptcy, it will have less impact on the underlying investors and the other clearing members. However, client clearing requires substantial investments, which can probably only be recouped by the very largest clearing members. It would therefore seem that only these very largest clearing members are able to offer client clearing to their clients. As a result, the clearing of OTC derivatives will mainly be concentrated among these members, which means that client clearing will lead to a further increase in the concentration risk.
In view of the pivotal role played by CCPs, a defaulting CCP can have substantial consequences for individual financial institutions and the securities and derivatives markets as a whole. Risk is inherent to the activities of a CCP. To minimise all the earlier mentioned risks, CCPs are required to comply with international rules and standards and their risk management must meet strict requirements. In short, it is absolutely imperative that CCPs optimally manage all the attendant risks and that the supervisor ensures that this is indeed the case.

This chapter discusses the risk management of a CCP. Chapters 9 and 10 go into the rules, standards and supervision of CCPs.

### Default waterfall

A CCP’s risk management system, or risk management framework, generally consists of a model comprising several lines of defence. If one line of defence fails to absorb a clearing member’s bankruptcy, the following line of defence is activated. This consecutive sequence is also referred to as the default waterfall.
Admission criteria
As the first line of defence, CCPs seek to ensure that they only do business with financially healthy clearing members who have sufficient knowledge and expertise. CCPs therefore apply admission criteria related to expertise and creditworthiness. The aim of these admission criteria is to create a solid foundation of clearing members from the outset. Chapter 8 will take a closer look at these admission criteria. The advantage of such admission criteria is their transparency. All clearing members of a CCP know that each of them satisfies the admission criteria.

Margin
Despite these admission criteria, a clearing member’s default can never be entirely ruled out. CCPs therefore ask their clearing members to put up security by depositing a margin in the form of cash or securities. This margin constitutes the second line of defence in the default waterfall. A CCP makes a distinction between initial margin and variation margin. The initial margin is for covering the loss that a CCP sustains if it needs to wind down or liquidate a portfolio of a bankrupt clearing member. The CCP therefore makes an assessment of the potential future loss on the portfolio of each clearing member. CCPs develop their own formulas for this purpose.

The variation margin serves to cover losses arising from price fluctuations in normal market conditions. The CCP calculates this margin by comparing the value of a clearing member’s portfolio at the end of the trading day (T) with its value at the end of the previous trading day (T-1). If the portfolio value has fallen or risen beyond a certain limit, the CCP will request extra margin from the clearing member or pay back the surplus margin. The actual payment of the margin takes place at the start of the following trading day (T+1). As the value of the portfolio can change during the trading day, a CCP can, in the event of exceptional market conditions (including high price volatility), also request its clearing members to deposit extra margin during the day. This is called an intraday margin call.

Default fund
If a clearing member goes bankrupt and the deposited margin proves to be insufficient to cover the losses, the third line of defence comes into play. The CCP will then fall back on the default fund (or clearing fund). All the participating clearing members contribute to this fund. Each CCP employs its own computation method to determine the contribution, the size of which differs per clearing member. The greater the estimated risks attached to a clearing member, the higher the contribution. The default fund ensures that the CCP can
absorb a bankruptcy of its largest clearing member. If a clearing member goes bankrupt and its deposited margins are insufficient to cover the loss, the CCP will in the first instance use this party’s contribution to the default fund, the so-called defaulter’s clearing fund, to make up the shortfall. Only if this is not sufficient the CCP will turn to the remaining default fund, the survivor’s clearing fund. According to the new European Markets Infrastructure Regulation (EMIR), the total default fund must be large enough to absorb a bankruptcy of the largest two clearing members without any problems. Chapter 9 takes a closer look at this new Regulation.

Clearing members can pay their margin and contribution into the default fund in various ways. The most customary method is to deposit collateral in the form of cash or securities. For reasons of safety and efficiency, the Dutch market participants favoured concentrating their collateral at a single safe location. In response to this request, DNB developed the guarantee model. This model is accessible to the Dutch clearing members of CCPs that are active in the Netherlands and maintain an account via DNB in the European interbank payment system TARGET2. If a clearing member makes use of the guarantee model, it is not required to deposit collateral with the CCP, but uses its existing collateral account at DNB for this purpose. The CCP informs DNB daily of the size of the margin requirement of each clearing member and DNB blocks that amount on the clearing member’s collateral account. The CCP then receives a guarantee from DNB for that amount. If a clearing member can no longer meet its payment obligations to the CCP, DNB pays out the required amount to the CCP, in order to effect the planned settlements. Via a counter guarantee provided by the clearing member, DNB is permitted to deduct the amount paid to the CCP from the pledged collateral that the clearing member maintains with DNB.

**Other financial sources**

A CCP’s fourth and last line of defence is called into action in the unlikely event that both the paid margins and the default fund are insufficient to cover the losses. This fourth line of defence may consist of diverse components, such as the CCP’s equity, a parent company guarantee (e.g. if the CCP is a subsidiary of a bank), or a guarantee or insurance from a third party. If a CCP uses part of its own equity to cover the loss before turning to the survivors’ default fund, this is called ‘skin in the game’, the underlying idea being that in this case, the CCP itself has a greater interest in preventing a clearing member from going bankrupt. The CCP can
realise this by introducing a robust risk management system and keeping this system up to date.

Many CCPs employ the waterfall with four lines of defence as described in this chapter, but the details may vary. With OTC derivatives, for instance, CCPs often opt to cover losses with their own equity first, before turning to the survivors’ clearing fund. Moreover, with derivatives transactions, it is customary practice to apply marked-to-market valuation, in which case the CCP calculates the value on a daily basis. A counterparty that has a contract with a negative market value must pay variation margin in favour of the CCP, which channels the received margin through to the party that has a contract with a positive market value.
Based on chapter 2, it can be concluded that many more parties have access to a trading venue than there are clearing members. Formerly, admission to a CCP used to be largely the preserve of banks, but this will change for OTC derivatives once EMIR has been fully implemented.

**Admission criteria of CCPs**
To obtain a connection with a CCP, clearing members must meet its admission criteria. In this way, the CCP seeks to minimise the risk that clearing members will prove unable to meet their obligations. The strictness of the admission criteria depends on the type of clearing member. There are two types of clearing members. The first is the direct clearing member (DCM) or individual clearing member (ICM), who is only authorised to clear transactions for its own institution. The second type consists of clearing members who provide services to trading members outside their institution. These are known as general clearing members (GCM). As a rule, the admission criteria for general clearing members are stricter than for direct or individual clearing members.

Each CCP applies its own set of criteria, which the supervisor tests for compliance with the ‘fair and open access’ principle. Under this principle, a CCP may only refuse a clearing member if it considers this party too risky and is able to substantiate this assessment with objective criteria. Refusal of a potential clearing member on other grounds is not permitted.

Admission criteria that are commonly applied by CCPs are:
- Minimum credit rating for the clearing member;
- Minimum requirement for own funds. This applies in particular to general clearing members;
- Risk management capability. The CCP assesses whether a clearing member is capable of independently analysing the risks of its own portfolio;
- Operational capabilities. The clearing member must demonstrate that it responds quickly to information requests or requests to deposit additional collateral from the CCP;
- Variation in and/or size of the portfolios that the clearing member offers to the CCP;
- The clearing member’s legal place of business. Many CCPs prescribe that a clearing member must have a presence in the country in which the CCP is established. This obligation has to do with bankruptcy legislation. In general, European clearing members must have a presence in a country within the European Union, Iceland, Liechtenstein, Norway or Switzerland.
The CCP checks at least once a year whether its clearing members still meet the admission criteria. If necessary, the CCP also carries out such checks on an ad hoc basis.

Relaxation of the admission criteria can have consequences for a CCP’s risk profile, which means it must reassess its default waterfall to see whether any adjustments are necessary.

**Admission to CCPs for OTC derivatives**

SwapClear was already mentioned in chapter 5 as the British sister company of Clearnet SA, the CCP that clears the securities and derivatives transactions executed on Euronext Amsterdam. SwapClear is a voluntary initiative of dealers and was set up in 1999 as the first CCP for OTC derivatives, namely interest rate derivatives. In the meantime, SwapClear has grown into the largest and best-known CCP for OTC derivatives.

When SwapClear was set up, dealers needed to have a portfolio worth at least USD 1 billion to be admitted as a clearing member. In addition, SwapClear also stipulated that its clearing members had to be capable of helping to wind down, or execute, the portfolio of a clearing member who was no longer able to meet its obligations. Due to these two additional criteria, only the largest traders in OTC derivatives had access to SwapClear.

Following the introduction of mandatory clearing for OTC derivatives, these two admission criteria have been relaxed or even abolished. In addition, since 2010 SwapClear has opened its doors to professional buy side parties, such as pension funds, insurance companies, investment funds and large companies.
As demonstrated in the previous chapters, safe and efficient CCPs contribute towards the preservation and promotion of financial stability. The other side of the coin is that CCPs lead to a concentration of risks. Unless properly managed, these risks can cause a financial shock. Since the beginning of this century, a harmonised set of international standards has been developed for parties operating within the financial structure, including CCPs. In addition, in August 2012 the European Regulation on OTC derivatives, central counterparties and trade repositories entered into force. This is more commonly known as the European Markets Infrastructure Regulation (EMIR).

**EMIR**

Chapter 4 already briefly mentioned the decision taken by the G-20 leaders in 2009 to make the OTC derivatives market safer and more transparent. Within the European Union, the rules for achieving this objective are mainly laid down in EMIR. Alongside the obligatory role for CCPs in the settlement of standard OTC derivatives and the disclosure obligation for all derivatives contracts, EMIR also contains rules that all CCPs are obliged to adhere to, including CCPs that do not settle OTC derivatives. Amongst other things, CCPs must apply for a licence. EMIR also sets out requirements for the collateral to be deposited with the CCP and the portability of that collateral. Cleared positions must also be portable. At the end of July 2012, EMIR was published in the Official Journal of the European Union and thus entered into force in mid-August 2012. EMIR is a framework act and the technical details needed to be worked out. In practice, therefore, EMIR actually took effect on 15 March 2013 when it became possible for CCPs to apply for a licence from their supervisor. Once the CCP has obtained a licence, it can report the type of derivatives contracts it will apply for mandatory clearing, about which the European Commission will ultimately make a definite decision.

To qualify for a CCP licence, a CCP must comply with many statutory rules. For instance, EMIR includes a specific capital requirement for CCPs, whereby the initial capital must be at least EUR 7.5 million and in proper proportion to the risks to which the CCP is exposed. In addition, the capital must be sufficient to continue the activities for a number of months in the event of liquidation or reorganisation. The CCP must have a clear and robust governance structure with a reliable and experienced management as well as procedures to prevent conflicts of interest. Moreover, the CCP is obliged to set up an independent users’ council. The admission criteria for participation in the CCP must be non-discriminatory, transparent and objective, so that they guarantee honest...
and open access. The CCP measures and assesses the liquidity and credit risk that it runs in respect of each clearing member and EMIR indicates how it must limit these risks. This can be done, for instance, via procedures that must be regularly tested and by depositing collateral. The risk management of a CCP as outlined in chapter 7 is thus firmly embedded in law. On top of the margins, a CCP needs sufficient liquidity of its own to perform its services and activities. And according to EMIR, the CCPs must also make their own contribution to the default waterfall. This makes ‘skin in the game’ obligatory for CCPs, giving them a continuous incentive to ensure that their default waterfall matches their operations and the resulting risks. Moreover, a CCP is only permitted to invest in cash funds or highly liquid financial instruments with an extremely low market and credit risk.

Another important component of the EMIR rules concerns the manner in which the collateral and cleared positions can be maintained at a CCP. This is also known as segregation and portability. EMIR distinguishes three methods for asset segregation. A CCP is required at all times to ensure that the deposited collateral and the cleared positions of clearing members are mutually segregated. In addition, the CCP must enable a clearing member to segregate its collateral and positions from those of its underlying clients. This is known as omnibus client segregation. And the CCP must support the mutual segregation of the collateral and positions of individual clients within a clearing member’s account. The latter possibility concerns the earlier mentioned client clearing, but is referred to in the law as individual client segregation. This latter form of asset segregation also entails that a margin surplus in one client’s account cannot be used to compensate losses in another client’s account. Apart from the CCP, the clearing members must also support omnibus and individual client segregation. And both must inform their clients of the legal and financial consequences of the various forms of segregation. If a clearing member is unable to meet its obligations, omnibus client segregation and individual client segregation make it possible to transfer the collateral and the cleared positions to another clearing member. Participants must, of course, act in accordance with the applicable national bankruptcy legislation in this connection.

**Standards**
Before EMIR entered into force, there were numerous sets of international standards for the various participants within the financial infrastructure. These sets of standards have undergone progressive development since 2001. Early in 2012, they were renewed and combined
into a harmonised set of twenty-four international standards known as the ‘Principles for Financial Market Infrastructures’. Twenty-two of these standards, which were jointly drawn up by central banks and supervisors in the securities markets, are relevant for CCPs. The organisations responsible for this in the international context are the Committee on Payment and Settlement Systems (CPSS) of the Bank for International Settlements (BIS) and the International Organization of Securities Commissions (IOSCO). The standards are therefore often referred to as the CPSS/IOSCO standards.

The CPSS/IOSCO standards have three characteristics:

1. Principle-based: these are not rules that prescribe exactly how a system should be set up or operated. A CCP can comply with a standard in various ways;
2. Preventive: the standards are designed to reduce the risks in advance. The overseers will therefore test any systemic changes at a CCP in advance. In addition, there are several general standards for ensuring fair and open access to the CCP as well as efficiency and good governance;
3. Minimal: the standards indicate a minimum the CCP must satisfy, but the CCP can also opt to take its compliance beyond this minimum.

A CCP that has been set up according to the EMIR provisions also largely satisfies the CPSS/IOSCO standards for CCPs. Supplementary to the EMIR, these standards also contain rules which the actual settlement must satisfy. For instance, settlement must take place, in so far as possible, on an account held by the CCP and clearing members at a central bank. In addition, a CCP must clearly describe when a settlement is final and, hence, irreversible. Finally, a CCP must prevent clients from running extra risk, for instance by failing to ensure the simultaneous settlement of both sides of a transaction.
In chapter 3, we concluded that CCPs form an important link in the settlement of securities and derivatives transactions by reducing the counterparty and operational risk. CCPs are therefore generally perceived by all participants within the financial infrastructure as systemically important institutions and must consequently be subject to supervision. The supervision over CCPs is part of oversight, a form of supervision that central banks carry out in order to promote safe and efficient payment and securities transactions. Apart from CCPs, oversight is also performed in respect of all other institutions and systems that are involved in the clearing and settlement of money, securities and derivatives transactions, including CSDs.

Legal framework
In the Netherlands, DNB’s oversight of securities and derivatives transactions is based on the Banking Act. On the grounds of this Act, DNB is entrusted with the task of promoting the proper operation of the payments system. AFM and DNB jointly conduct the oversight of institutions and systems that handle the clearing and settlement of securities and derivatives transactions that are relevant to the Netherlands. The Financial Supervision Act (Wet op het financieel toezicht / Wft) contains no direct provisions for the oversight of CCPs. The obligations that a CCP must satisfy are worked out in more detail in the licence for holding a trading venue. Under the terms of this licence, which is issued by the Minister of Finance, the trading venue is responsible for adequate clearing and settlement, which means the oversight of CCPs is indirectly regulated. This means CCPs in fact came under the supervision of the AFM and DNB on the grounds of administrative law.

Pursuant to the entry into force of EMIR, the statutory supervisory framework for CCPs has been adjusted. DNB and AFM have power of prior approval, which means that under EMIR a CCP can only be set up and carry out its activities if the supervisors have issued the appropriate licence. Changes in existing licences are also subject to approval from the supervisors. Parliament has decided that a Dutch CCP must apply for a licence from DNB. However, as AFM is also partly responsible for the oversight on CCPs, the two regulators must work closely together in this connection. The Wft therefore stipulates that DNB must request advice from AFM on certain aspects before issuing a new licence or expanding an existing licence. In principle, the advice from AFM is binding on DNB, unless DNB is of the opinion that acting on this advice would endanger the stability of the financial system. In this case, DNB can opt to deviate from AFM’s advice.
Alongside EMIR, there is also the harmonised set of international standards as discussed in chapter 9. These standards form the basis for the oversight of DNB and AFM over CCPs for matters falling outside the scope of EMIR.

Until EMIR-based licences are issued, the oversight in the Netherlands will continue to take place on the basis of an Oversight Framework, which contains the CPSS/IOSCO standards and other conditions which the CCP is required to meet. A separate Oversight Framework was drawn up for every CCP based in the Netherlands. The relevant CCP, the AFM and DNB subsequently signed an agreement in which the parties undertake to comply with the Oversight Framework. In the agreement between the CCP and the trading venue, it has been arranged that the CCP shall assume responsibility for efficient and orderly settlement. As soon as a CCP ceases to meet the requirements laid down in the Oversight Framework, there will be consequences for the trading venue. In the most extreme case, the licence of the trading venue can be suspended on the grounds that the obligation to ensure orderly clearing and settlement is no longer satisfied.

The supervision over CCPs that are active both in the Netherlands and beyond is carried out together with other relevant foreign supervisors. Mutual Memoranda of Understanding (MoUs) have been concluded for this purpose. These MoUs will be aligned with the EMIR.
In November 2011, the G-20 adopted a proposal of the Financial Stability Board (FSB) about the ‘Key Attributes of Effective Resolution Regimes for Financial Institutions’. In these Key Attributes, the FSB describes the measures that banks must take to prevent any problems they encounter from developing into a serious disruption of the rest of the system or a loss for the taxpayer. In the Key Attributes, the FSB indicates that other participants within the financial infrastructure, such as CCPs, should also take similar measures. CPSS/IOSCO has taken it upon itself to bring out an initial advice statement on this issue and came up with a consultation document in late 2012. The aim is for CCPs to implement as promptly as possible an effective recovery plan and resolution regime that are consistent with the Key Attributes of the FSB and the CPSS/IOSCO standards.

**Recovery Plan**

The purpose of a recovery plan is to reduce the chance of bankruptcy by having a plan of measures in place to respond to a crisis situation as soon as it occurs. The starting point is that parties that participate in the financial infrastructure are responsible for their own recovery plan. However, the resolution regime is a matter for the authorities. The implication is that a CCP must set up its own recovery plan. The CCP’s regulator then checks whether the plan is realistic and can be deployed quickly enough as and if necessary.

The problems requiring a recovery plan at a CCP can arise due to, among other things, the bankruptcy of a clearing member or losses on the investments of a CCP. EMIR and the CPSS/IOSCO standards already oblige the CCP to take a number of measures, such as the creation of a default waterfall and the implementation of rules and procedures for dealing with losses. But these do not provide a CCP with a solution for its open positions that arise when one of its clearing members goes bankrupt. A CCP can try to transfer such open positions to its clearing members via an auction. However, a clearing member will only be prepared to cooperate with this solution if it does not lead to any extra losses. The promise of compensation for any losses arising from such a transferred position may persuade a clearing member to cooperate, but a CCP will need additional funds to pay for this. If the possibilities of an auction have been fully exhausted, there is still the option of closing unsold positions with the aid of a cash settlement, the so-called tear-up. The disadvantage of such a tear-up is that the remaining clearing members are confronted with an imbalance in their portfolio, for instance due to the cancellation of a hedge transaction. This increases the risk for the clearing member. It is important to prevent
such tear-ups creating problems for other clearing members.

Resolution regime
If it transpires that the measures from the recovery plan have failed, the resolution regime must be called into action. This resolution regime is aimed at helping the authorities continue the activities of a CCP during a crisis situation and, if necessary, subsequently winding down its activities. Most CCPs already have a recovery plan in place, but so far little has been done to arrange the resolution regime. Only Great Britain has made a first step towards the appointment of the responsible authority. What a resolution authority is and is not allowed to do, and what resources will be at its disposal, must still be decided on the basis of a consultation procedure held by the European Commission. Agreement has been reached about the purpose of the resolution regime within CPSS/IOSCO: a CCP that finds itself in a crisis situation which its recovery plan has failed to remedy must under all circumstances still be able to perform its critical services.

The manner in which the critical services can be continued is still a subject of discussion. Solutions that are being explored include raising extra capital and transferring the activities from the CCP to another organisation. However, one thing is clear: the resolution regime must ultimately not cost the taxpayer any money.

If the continuation of the CCP’s services is only possible through government intervention, this must not take place until a plan has been drawn up outlining how and when the government shall be repaid.

The coming period will be used to develop the rules for the recovery plans and the resolution regime in more detail.
In most European countries it was traditional practice for a trading venue to set up its own CCP for clearing the trades executed on that platform. As a consequence, the landscape of the European securities industry is strongly fragmented with limited competition. Market participants and authorities were keen to change this situation.

**Code of Conduct for the promotion of competition**

On 31 October 2006, the representatives of the most important European industry organisations within the sector for trade, clearing and settlement signed a Code of Conduct. The purpose of this code was to promote transparency and competition, and thus reduce the costs for the clearing and settlement of (cross-border) securities transactions. Two new European CCPs for securities subsequently entered the market, namely EMCF in 2007 and EuroCCP in 2008. These two new CCPs charged their clearing members lower rates than the existing CCPs. The clearing members, and in many cases their underlying clients, benefited from these lower rates. EMCF and EuroCCP have thus indirectly fanned the flames of competition in the clearing industry.

The existing CCPs were forced to follow suit and lower their rates. The downside of the arrival of these new CCPs was that the market was even further fragmented and that the collateral of the clearing members was spread over even more different CCPs.

The Code of Conduct provides a solution for the promotion of competition between CCPs, namely interoperability. Interoperability means that a CCP becomes a participant of another CCP; in other words, they become linked to one another (Figure 7).

By entering into these link relationships, different CCPs can clear the transactions on the same trading venue. This results in direct competition between the linked CCPs, which can serve to reduce the settlement costs for market participants and/or improve the services. Another advantage of interoperability for market participants is that they can now take part in a linked CCP via a single clearing member. This means that several participants are involved in the multilateral netting process, which leads to more efficient netting and a lower open position. The lower open position and the fact that collateral now only needs to be maintained with one clearing member or CCP promotes a more efficient use of the collateral and hence lower costs.

However, the links between CCPs also give rise to new risks, as a CCP can be hit via a link if a problem occurs at another CCP and its affiliated clearing members. This is also called the risk of contagion. The default waterfall of
linked CCPs must therefore be adapted to cope with these new risks. The types of risks involved are operational risk, legal risk and counterparty risk. The operational risk is increased firstly because, due to the link, two CCPs can be involved in a single transaction. The more parties that are involved, the more complex and less transparent the process becomes, so that the risk of errors is exacerbated. Another reason for the heightened operational risk is that interoperability leads to the exchange of collateral between the CCPs that have entered into a link. The legal risk increases if a single transaction is cleared by two CCPs falling under different jurisdictions. The counterparty risk grows because a CCP no longer guarantees both sides of a transaction, which means that interoperable CCPs can have open positions with respect to each other at the end of the day. The interoperable CCPs thus run a counterparty risk vis-à-vis each other, on top of their counterparty risk with their clearing members.

**Initiatives towards interoperability in Europe**

At the end of 2011, four European CCPs for securities clearing (EMCF, EuroCCP, LCH and the Swiss-based SIX x-clear) received approval from their overseers for
interoperability for the BATS and Chi-X trading venues. As a result, since 2012 clearing members have been able to choose between four CCPs for the settlement of transactions executed on these two MTFs. Subsequently, the supervisors approved further initiatives in 2012, so that the aforementioned four CCPs now also offer interoperability for the British Turquoise and three of the four CCPs for the Swedish Burgundy. During the approval process, AFM and DNB worked closely together with the overseers from the other countries involved.

This approval was preceded by a lengthy process. The first interoperability structure introduced uncontrollable risks in the financial system and thus failed to meet the relevant international oversight standards. The four CCPs were instructed to identify and mitigate the new risks that were caused by interoperability. In their new, and subsequently approved, proposal, the CCPs came up with the solution to treat each other as a ‘special’ clearing member, to which a particular default waterfall is applicable.

This waterfall has two lines of defence, namely the admission criteria and a contribution to the interoperability fund. In other words, the interoperable CCPs do not contribute to each other’s default fund. The contribution to the interoperability fund can be seen as a kind of inter-CCP margin and thus creates extra collateral. All involved parties are obliged to contribute to the interoperability fund, which means that more collateral is required. However, the negative effect of the associated higher costs is expected to be outweighed by the advantages of interoperability.

Alongside the four aforementioned interoperable European CCPs, other CCPs for securities, such as the German Eurex, have also announced their intention to explore the possibilities for interoperability. Clearnet SA is not taking part as it has decided that only its sister company LCH will be involved in these initiatives. The required facilities will therefore only be set up for LCH. One reason for this decision is that interoperability does not yet exist for the markets of NYSE Euronext where Clearnet acts as CCP. If NYSE Euronext opens its markets to interoperability, Clearnet SA will reconsider its position. Clearnet SA is working with the Italian CCP on an interoperability initiative for Italian government bonds.

**Interoperability between CCPs for OTC derivatives**

In chapter 6 it was noted that a number of countries have or are in the process of setting up a CCP for OTC derivatives in their own jurisdiction. This will result in a further fragmentation of the collateral, which is precisely
the problem that interoperability is intended to solve. Though links between CCPs for OTC derivatives are not yet operational, research has been carried out into the various alternatives and how these could be realised. First of all, CCPs could work together on a basis of equality, using a jointly agreed default waterfall for covering the risks of interoperability. The second alternative is the structure that is applied by the four European CCPs for securities, namely that the CCP becomes a ‘special’ clearing member of the other CCP. With these two alternatives, clearing members only need to have a single connection to one of the interoperable CCPs. In the case of the third form of interoperability, cross-margining, there is really no question of a link between the CCPs. With this alternative, the portfolios that a clearing member holds with different CCPs is regarded as a single portfolio, so that netting takes place across several CCPs.

In this case, however, clearing members do need a connection with all the CCPs involved.

In March 2012, two US CCPs, SwapClear and the US exchange for interest rate swaps, announced a partnership based on the principle of cross-margining. The two parties have agreed to develop a joint default management and risk management process, as well as a settlement system for non-USD amounts. The initiative is still awaiting the approval of the regulators involved.
Supervisory requirements for clearing members

Clearing members are generally banks and this means that, like CCPs, they must meet certain supervisory requirements. Many of the supervisory requirements for banks are agreed internationally within the Basel Committee on Banking Supervision. Those requirements must then be incorporated into the laws of the participating countries in order to gain legal force and be introduced in practice.

At present, no supervisory requirements exist for bank exposures to CCPs, but this will soon change. There are very concrete plans to establish capital requirements for bank exposures to CCPs. In addition, the need to extend the application of the arrangement for large exposures to CCPs is also being studied. Apart from increasing the requirements for bank exposures to CCPs, additional requirements will also be introduced for bilaterally cleared positions. As bilateral clearing will be subject to more stringent capital requirements than CCP clearing, the use of CCPs will be stimulated, which is precisely what the G-20 had urged.

Basel capital framework

The existing Basel II capital framework for banks contains minimum requirements for the capital that banks must maintain to cover their risks. Basel II has no capital requirements for exposures to CCPs, as the related risk was regarded as extremely low; the risk weighting for these positions is therefore 0%. However, the financial crisis made it abundantly clear that the framework was due for a review. For this reason, in 2010 the Basel Committee published a proposal for a new capital framework, known as the Basel III framework. Basel III will be introduced in phases between 2014 and 2019.

CCP clearing

The new capital requirements for exposure to CCPs in the Basel III framework consist of two elements. First, a uniform capital requirement will be introduced by increasing the risk weighting for trade exposures to CCPs for listed and OTC derivatives from 0% to 2%. This slight increase reflects the small risk of a CCP going bankrupt. However, small as it may be, this increase clearly imposes greater stringency than Basel II. No increase in the risk weighting is proposed for CCPs that clear securities, as securities transactions are usually settled within a limited number of trading days. The counterparty risk for securities transactions is therefore much smaller than for derivatives transactions.

Alongside the uniform capital requirement, the Basel Committee has proposed a capital requirement that is related to the banks’ contribution to a CCP’s default fund. The reason for this is that the loss-sharing
mechanism of the default fund entails that banks can be hit by the bankruptcy of another clearing member. Until a definite method has been determined for the computation of the capital requirement for the contribution to the default fund, the clearing member can choose between two computation methods. The clearing member can either use a method that was developed by the CCP and approved by its regulator, or the capital requirement can be computed on the basis of a standard formula. The most important variables in this formula are the open position, the deposited margin and the size of the contribution to the default fund.

The new capital requirements for CCP exposures have a dual purpose. The first is to stimulate the banks to keep CCP exposures ‘on the radar’. This means that banks must continuously monitor their exposures to CCPs and control the related risks. The second is to encourage banks to make use of safe CCPs with a low risk profile by attaching lower capital requirements to this latter category. This preserves the incentive to make more use of CCPs.

**Bilateral clearing**
Alongside the increased capital requirements for exposures to CCPs, the new framework also provides for bilaterally cleared derivatives. The amount of extra capital that banks will need to maintain as a result of these more stringent requirements will vary among banks. The aim of these tougher capital requirements for bilateral clearing is to give banks an incentive to make more use of CCPs for the settlement of OTC derivatives, while simultaneously covering the remaining counterparty risk.

The additional capital requirement to cover the counterparty risk for bilaterally cleared derivatives is called Credit Value Adjustment (CVA). The idea for this capital requirement arose during the financial crisis when a growing number of participants with OTC derivatives ran into problems. The size of the CVA is calculated for each counterparty and depends on the creditworthiness of the counterparty and the term of the bilaterally cleared derivatives contract. The CVA applies to all bilaterally cleared OTC derivatives, with the exception of the credit default swaps that were concluded to reduce the counterparty risk of the portfolio.

The new Basel III capital requirements were initially intended to take effect on 1 January 2013. However, various parties including the European Union and the US failed to complete the relevant legislation in time.
In the European Union the capital requirements directive take effect on 1 January 2014.

In order to further discourage the use of bilaterally cleared derivatives, bilateral margin requirements will also be introduced. As explained in chapter 7, the margin consists of the variation margin and the initial margin. Variation margin is already required for OTC derivatives contracts, but the calculation and exchange of that margin is often irregular or incomplete. The new requirements prescribe that in future this must be done regularly and completely, preferably on a daily basis. As yet, initial margin is only rarely required for OTC derivatives contracts. The new margin requirements will change this situation. To calculate the size of the required initial margin, the counterparties must determine their potential future loss on the contract. This can be done with the aid of a model approved by the regulator or by means of a standard approximation method that makes use of a formula that links the size of the initial margin to the type of derivative and the remaining term of the contract. The riskier the type of derivative and the longer the term of the contract, the higher the percentage that must be maintained as the initial margin. The standard formula is constructed in such a way that it generally results in a higher initial margin than an approved model.

It is proposed that the bilateral margin requirements will also be introduced in a phased process. According to the proposal, the participants with the very largest portfolios of bilaterally cleared derivatives must provide a margin from 1 January 2015. In the subsequent four years, the margin requirement will be made applicable to progressively smaller portfolios in a step-by-step process until this measure is fully introduced on 1 January 2019. This means that from then onwards a bilaterally cleared derivatives contract will be subject to both the CVA obligation and the margin requirement. However, this does not mean that the counterparties will be confronted with a double obligation; in providing margin, a party automatically reduces its counterparty risk, which can be taken into account when computing the CVA. The margin requirement will therefore lead to a lower, or even zero, CVA. This relationship does not apply in reverse, i.e. the CVA will not lead to a lower margin requirement.

**Regulation for large exposures**

The regulation for large exposures is designed to avoid significant concentrations at financial institutions, as these give rise to substantial risks. A financial institution with an excessive concentration of exposures becomes too dependent on one or two counterparties. If one of these counterparties runs into problems, it could drag the bank down in its wake. To prevent this domino effect,
the bank’s total exposure to a counterparty is subject to a limit. The benefits of this measure are twofold. There is less risk that a financial institution will wind up in the danger zone due to the sudden default of a counterparty. And it becomes more difficult for a single party to become a ‘systemically important financial institution’ (SIFI). The existing regulation for large exposures contains an exception for exposures to CCPs, but the Basel Committee is considering abolishing this exception.

The expectation is that a special regime will be proposed for exposures to CCPs rather than applying the existing regime one-to-one. Alongside practical objections, the most important reason for this is the need to prevent a situation whereby the application of the existing regulation for large exposures leads to undesirable side-effects. Examples are that CCPs would be avoided or that the default waterfall would be adjusted downward, which would make the CCP less safe. For these reasons, it will still take some time before an agreement on a new regime is reached. The Basel Committee expects to announce the initial outlines of a new regulation for large exposures in 2013.


Basel Committee on Banking Supervision, 2010, ‘Capitalisation of bank exposures to central counterparties’, available via: www.bis.org/publ/bcbs190.htm


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