

Central counterparties for over-the-counter derivatives¹

Wider use of central counterparties (CCPs) for over-the-counter derivatives has the potential to improve market resilience by lowering counterparty risk and increasing transparency. However, CCPs alone are not sufficient to ensure the resilience and efficiency of derivatives markets.

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Through its Financial Products Group, headquartered in London, American International Group (AIG) managed to sell enormous amounts of credit risk insurance without the financial resources necessary to cover potential payments. By end-June 2008, AIG had taken on \$446 billion in notional credit risk exposure as a seller of credit risk protection via *credit default swaps (CDS)*.² A CDS contract is a credit derivative that, for a specified bond issuer, protects the buyer against a default or debt restructuring. AIG's unhedged sales of nearly half a trillion dollars of insurance represented a significant concentration of credit risk in a market participant that ultimately did not have the necessary loss absorption capacity. The widespread bond defaults during the recent crisis imposed substantial losses on AIG and other sellers of credit risk insurance. The losses made clear the risks to both individual institutions and the global financial system arising from the vast amount of CDS issuance – and showed that those risks were larger and more severe than anyone had realised. One result has been renewed calls from policymakers for a revision of regulatory frameworks and improvements in the organisation of derivatives markets to reduce the potential for such risks to build up.

Here we focus on an important emerging improvement in market organisation: the introduction of *central counterparties (CCPs)* for over-the-counter (OTC) derivatives, in particular for CDS. A CCP is an independent legal entity that interposes itself between the buyer and the seller of a

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² Italicised terms appear in the Glossary, p 57.

derivative security. When trading through a CCP, the single contract between two initial counterparties that is the hallmark of an OTC trade is still executed, but it is then replaced by two new contracts – between the CCP and each of the two contracting parties. At that point, the buyer and seller are no longer counterparties to each other – instead, each acquires the CCP as its counterparty. This structure has three clear benefits. First, it improves the management of counterparty risk. Second, it allows the CCP to perform *multilateral netting* of exposures as well as payments. Third, it increases transparency by making information on market activity and exposures – both prices and quantities – available to regulators and the public.³

We proceed by briefly documenting the dramatic growth in OTC derivatives markets in recent years and comparing different ways to organise derivatives markets. We move on to consider how a CCP addresses financial stability issues in OTC derivatives markets and report recent developments in the introduction of CCPs. We then discuss the structural and regulatory challenges related to the introduction of CCPs for trading CDS. The final section offers some concluding observations.

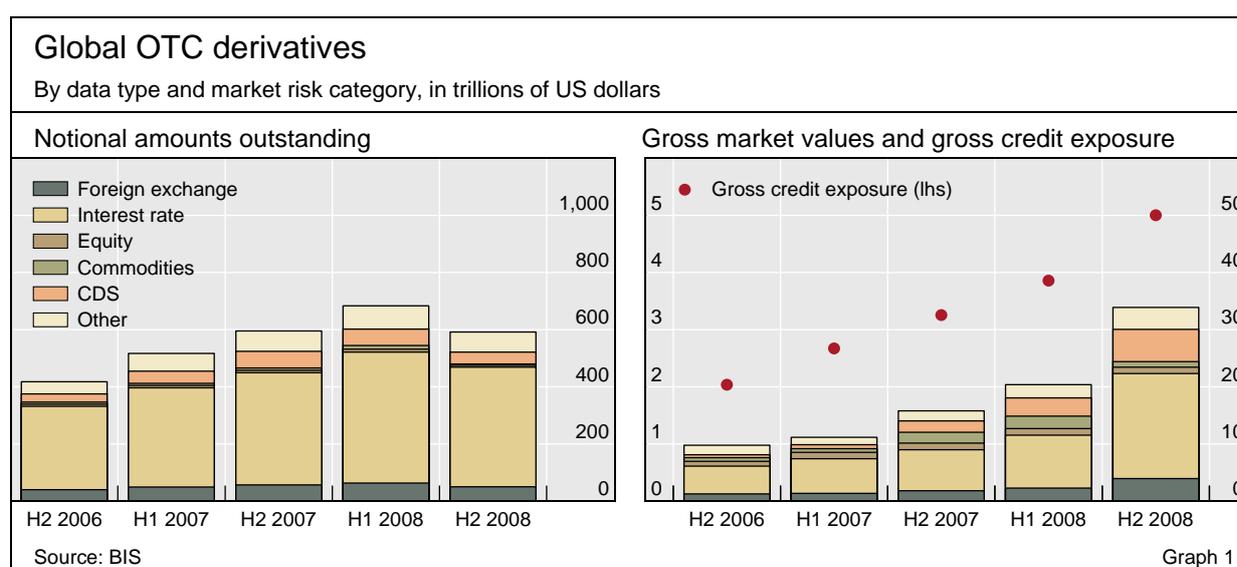
The growth of OTC derivatives markets

OTC derivatives markets grew continuously from their inception in the early 1980s through the first half of 2008, when their growth was halted and then reversed by the financial crisis. The first-ever decline of *notional amounts outstanding* came in the second half of 2008 (Graph 1, left-hand panel). Even so, by end-2008, outstanding amounts of all types of OTC derivatives contracts stood at \$592 trillion, slightly below their level a year earlier.

Despite the drop in notional amounts outstanding, large movements in prices meant that the *gross market value* of contracts outstanding continued to

Derivatives volumes declined due to crisis ...

... while exposures increased



³ Some of these benefits may also be obtained through other mechanisms (see Ledrut and Upper (2007)).

rise dramatically, increasing by two thirds to almost \$35 trillion at the end of December 2008 (Graph 1, right-hand panel). These higher market values were also reflected in higher *gross credit exposures*, which grew by almost 30% to \$5.0 trillion. Anecdotal evidence suggests that as a consequence of the crisis, market-makers – the major dealers who facilitate trading in the OTC derivatives markets – have increased the fees they charge (by widening bid-ask spreads) and have also scaled back the level of their OTC derivatives positions. Furthermore, bank managers as well as regulators have pushed to increase capital allocated to counterparty and market-related risks, making derivatives trading more costly.

The organisation of derivatives markets

We can think of the organisation of derivatives markets as taking one of three forms (Table 1). The first, the bilateral OTC market, is a fully decentralised market in which participants trade – and clear their trades – directly with one another. The second is an OTC market with decentralised trading but with centralised clearing through a CCP. In the third type, an exchange-based market, both trading and clearing are centralised through an exchange that is typically linked to a CCP. As the last type of market organisation is well known, we focus on the first two.

Bilateral OTC market

Bilateral derivatives markets ...

In a bilateral OTC market, participants trade directly with one another, either electronically or via telephone. The management of counterparty risk – the risk that the person or firm on the other side of the transaction will fail to live up to what is contractually agreed – has two components: collateral and *bilateral netting*.

... currently use over \$4 trillion as collateral ...

In the collateral component, the parties limit counterparty risk by requiring the daily posting of collateral reflecting the mark to market changes in the value of the contracts. Collateral agreements can be customised to reflect the contracting parties' assessment both of the riskiness of the position and of each other's credit quality. The posting of collateral implies that actual counterparty exposures are smaller than market values would suggest. Surveys conducted by the International Swaps and Derivatives Association (ISDA) indicate that roughly two thirds of OTC derivatives exposures are collateralised and that the estimated amount of collateral in use at the end of 2008 was approximately \$4 trillion, of which almost 85% was cash (see ISDA (2009)).

... and have uncollateralised exposures of at least \$1 trillion

The second component of managing counterparty risk, bilateral netting agreements, helps reduce collateral requirements. The ISDA margin survey cited above indicates that virtually all large banks rely on some form of bilateral netting agreement to control counterparty exposures. In many cases, bilateral netting agreements allow for netting across different contract types. BIS statistics on OTC derivatives suggest that the impact of bilateral netting is

Three forms of market organisation for derivatives, by market characteristic			
Selected characteristic	Bilateral OTC	CCP	Exchange-based
Trading	Bilateral	Bilateral	Centralised
Clearing	Bilateral	Centralised	Centralised
Counterparty	Initial buyer or seller	CCP	CCP
Product features	All	Standardised and liquid	Standardised and liquid
Product examples	Foreign exchange swaps Interest rate swaps Credit default swaps	Plain vanilla interest rate swaps	Commodities Exchange rate futures Government bond futures
Participants	All	Typically larger dealers and higher-rated market participants	Typically larger dealers and higher-rated market participants
Market maker importance	Significant	Significant	Limited
Collateral practices	Bilateral posting of collateral	Margin requirements uniform for all	Margin requirements uniform for all
Margin movement	Decentralised and disputable	Centralised enforcement by CCP	Centralised enforcement by CCP
Risk buffers	Regulatory capital	Equity and margins	Equity and margins
Clearing and settlement	Bilateral	Centralised	Centralised
Netting	Some gross exposures netted bilaterally and some ad hoc multilateral netting	Exposures are netted multilaterally and position is against a CCP	Exposures are netted multilaterally and position is against a CCP
Regulation	Self-regulation and reliance on "market practices"	Self-regulation, reliance on "market practices" and public sector regulation of CCP	Self-regulation as well as public sector regulation of the exchanges and CCP
Transparency of exposures and activity	Limited or none	Detailed information available but not disseminated	Detailed information available but not disseminated
Transparency of prices	Pre-trade prices are non-binding quotes Actual transaction prices typically not published	Pre-trade prices are non-binding quotes No automatic publication of transaction prices	Pre-trade prices are binding quotes Actual transaction prices published

Table 1

substantial: at end-2008, the gross market value of all OTC derivatives was \$33.9 trillion.⁴

However, after one accounts for bilateral netting agreements, the gross credit exposure came to \$5 trillion at end-2008.⁵ Combining this information with the estimated \$4 trillion in collateral implies that uncollateralised OTC derivatives exposure at the end of 2008 came to about \$1 trillion.

⁴ Of that, \$18.4 trillion came from interest rate derivatives and \$5.6 trillion from CDS.

⁵ Except in the case of the United States, the gross exposure excludes CDS contracts.

Derivatives contracts have gradually become standardised

Bilateral OTC markets have a number of advantages. First, they facilitate the creation of new financial instruments at a relatively modest operational cost. Second, bilateral OTC markets allow customers to tailor products to their individual needs. Nevertheless, in order to facilitate transactions, derivatives contracts have in many cases become more standardised. For example, over the years, *interest rate swaps* and foreign exchange derivatives have become highly standardised through voluntary industry initiatives. One can think of the variation in standardisation across various contracts as both intrinsic to the variation across the contracts themselves, reflecting how amenable they are to standardisation, and as a reflection of how “evolved” the contracts are.

OTC derivatives markets lack transparency

Their decentralised nature, combined with the heterogeneity of the instruments traded, naturally makes bilateral OTC markets less transparent than their centralised counterparts. Information on prices and quantities in bilateral OTC markets is much more difficult to come by. Also, in many bilateral OTC markets, market-makers play an important role as intermediaries, profiting from price discrimination among their customers – one possible explanation for the absence of voluntary post-trade price transparency. That said, many derivatives (including CDS) are increasingly traded on bilateral OTC markets featuring electronic platforms that provide efficient access to real-time pre-trade prices, at least for more liquid instruments.

Central counterparty

CCPs replace existing bilateral arrangements ...

In an OTC market with a CCP, trading itself continues to take place on a bilateral basis. Once a trade agreement is reached, however, it is transferred, or “novated”, to the CCP: the single contract between the two initial counterparties is replaced by two new contracts between the CCP and each of the two parties.

... and become the only counterparty to buyer and seller

This structure brings with it a number of benefits. First, as the counterparty for all trades, the CCP can net multilaterally, thereby facilitating the reduction of both counterparty and operational risks. Netting on a multilateral basis is done by summing each participant’s bilateral net positions with those of the other participants to arrive at a multilateral net position. The resulting multilateral net position is the bilateral net position between each participant and the CCP. The available data indicate that multilateral netting of new CDS trades reduces gross notional exposures by approximately 90 percent. As more counterparties start using the CCPs, the benefits could be even larger.⁶

A second benefit from concentrating all outstanding derivatives positions of the participating buyers and sellers in a CCP is that it improves and simplifies the management of counterparty risk, as well as increasing the efficiency of collateral management. In addition, a CCP will also ensure

⁶ In 2008, multilateral netting facilitated by third party operators such as TriOptima and CreditEx eliminated more than \$30 trillion of CDS notional principal, or about three-fourths of total outstanding amounts at the end of the year. In the first half of 2009, TriOptima eliminated \$9 trillion of CDS notional principal through this mechanism.

consistent *marking to market*, margining and exposure evaluation across its participants.

One crucial characteristic of a CCP is that it mutualises credit and market risk, spreading it among all of its participants. But the capacity of a CCP to absorb risk is determined by the equity capital injected by its members, who own it; the margin it collects; and the practice of marking positions to market. Existing derivatives CCPs generally collect an initial margin from its members to cover potential future exposure in the event that a clearing member defaults. This initial margin, which is a form of collateral, is typically delivered either in cash or in the form of securities that have high credit quality and can easily be sold. As a rule, the CCP will reject new trades from a member whose initial margin is no longer sufficient. In a manner similar to bilateral arrangements, CCPs control risk by marking positions to market and requiring that a variation margin be paid and received each day. In periods with high volatility, positions may be marked to market intraday to limit the size of uncollateralised exposures.

Financial stability and central counterparties

Derivatives should serve to complete financial markets by improving the pricing of risk and helping market participants manage the risks they face. For a number of years this is exactly what the OTC markets for interest rate, exchange rate and commodities derivatives have done. And indeed, many of these markets continued to function well throughout the recent crisis. But the crisis brought to light several major systemic risks related to OTC derivatives markets.

Derivatives markets have mostly worked well

Lack of transparency

The lack of transparency with respect to exposures held by other market participants creates a variety of risks. One arises from the possibility that market participants and regulators will underestimate counterparty risk in a market dominated by a small number of large international banks and dealers. Before the crisis, market participants and regulators focused on net risk exposures of these firms, which were judged to be comparatively modest. In contrast, less attention was given to the large size of their gross exposures. But the crisis has cast doubt on the apparent safety of firms that have small net exposures associated with large gross positions. As major market-makers suffered severe credit losses, their access to funding declined much faster than nearly anyone expected. As a result, it became increasingly difficult for them to fund market-making activities in OTC derivatives markets – and when that happened, it was the gross exposures that mattered.

Lack of transparency creates risks ...

A second risk arises from derivative contracts sold to unregulated counterparties. The use of derivatives by hedge funds and the like can create large, hidden exposures. For instance, the steep currency depreciations in Brazil, Korea and Mexico in the second half of 2008 brought to light unexpectedly large forex exposures of domestic corporations that arose from

... by making large exposures more difficult to detect

OTC derivatives transactions.⁷ In some cases, host country authorities lacked information about the extent of such local OTC derivatives exposures in which foreign financial institutions served as counterparties.

Finally, it is now clear that the lack of transparency significantly complicated private and public sector responses to the failures of several large financial institutions. As a consequence, policymakers have shown renewed interest in improving the transparency of derivatives markets. Previous efforts in that direction have included improvements in national data collection as well as international collaboration among central banks and the financial industry via the BIS. Under the auspices of the Committee on the Global Financial System (CGFS), the BIS publishes semiannual derivatives statistics as well as a triennial market survey. Moreover, information on outstanding trades in the CDS market are now stored in a centralised trade data warehouse (described below). Nevertheless, information is available only at relatively low frequencies and only for broad market categories. And there is still very little information on either exposure levels or the nature of counterparties.

Introducing CCPs would improve transparency by allowing for easy collection of high-frequency market-wide information on market activity, transaction prices and counterparty exposures for market participants who rely on them. The centralisation of information in a CCP makes it possible to provide market participants, policymakers and researchers with the information to better gauge developments in various markets on the position of individual market participants.

Better access to exposure information has important implications, particularly for the CDS market. For example, the information should help ensure that adequate collateral is posted by CDS protection sellers. By raising the cost of taking very large positions, the maintenance of adequate collateral helps lower concentration risk. Similarly, the stricter margining rules imposed by a CCP increases the cost of taking short positions. Short selling a company can hinder its ability to raise funds in capital markets and thus increase its risk of default. That is, the possibility exists that the buyer of CDS can make the payoff of the insurance more likely. If this is correct, interposing a CCP could help lower the risk of default created by uncovered CDS positions or short selling.⁸

Insufficient financial resources to cover potential losses

The limited capital available to cover losses from writing CDS has also become a major concern. Historically, protection sellers have been subject to much lower capital allocation requirements than have the writers of other types of insurance contracts. This concern is also addressed by a CCP. If the risk

More financial resources to cover losses with a CCP

⁷ CGFS (2009).

⁸ Also, and in contrast with buyers of many other insurance contracts, buyers of these contracts are not required to have any stake in the underlying asset. For example, most jurisdictions prohibit buying fire insurance on someone else's house or life insurance on another person's life. For CDS, there is no requirement that the buyer owns the bond or has any other stake in the company on which the insurance is written.

management of the CCP follows current recommendations and practices, it should result in a higher overall posting of financial resources relative to potential losses than with OTC markets. However, this, combined with the perceived high costs of operating CCPs, may in part explain the long-standing opposition among key market participants to the introduction of CCPs.

Increased procyclicality

The increased use of CDS in recent years, combined with the rise in the volume of other types of derivatives, has arguably increased the procyclicality of the financial system. That is, greater notional quantities of derivatives outstanding could be a source of the reinforcing feedback between the real economy and the financial system. One reason is that in bilateral markets, OTC derivatives contracts normally require that, when downgraded, a protection seller must post more collateral. AIG is an important example. Asked to post significant amounts of additional collateral when it was downgraded from AAA, the largest insurance company in the world basically failed.

Increased procyclicality of markets ...

The tendency of derivatives markets to exacerbate the procyclicality of the financial system could be mitigated in a number of ways by the increased use of CCPs. First, by lowering counterparty risk concerns in periods of market stress, a CCP might help ensure that trading in CDS products continues in situations in which bilateral OTC markets might seize up. Second, more netting should result in less use of collateral, which would tend to reduce procyclicality. Third, a CCP may involve fewer downgrade-induced jumps in collateral, as it would require collateral to be posted by all counterparties, including those that are AAA-rated; this feature may in turn reduce pressure on markets for the securities used as collateral. Finally, a CCP has the potential to internalise market externalities by lowering margin requirements, as demonstrated during earlier equity market crises in, for example, Japan (Hardouvelis and Peristiani (1992), Borio (2004)). Nevertheless, because of their higher frequency in a CCP, centralised and uniform margin calls (compared with decentralised and less uniform collateral practices in bilateral OTC markets) could aggravate procyclicality.

... less of a concern with a CCP

Recent developments in the introduction of CCPs

In light of the weaknesses of bilateral OTC markets, there has been a strong push to introduce CCPs for CDS. For example, the Financial Stability Board (formerly the Financial Stability Forum) has urged market participants to create central counterparty clearing for OTC credit derivatives (FSF (2008)). Central counterparties for other derivatives, such as interest rate swaps, have been in place for a decade, and those for futures and options have, in some cases, been around for more than a century.

Strong regulatory push for CCPs

Interest rate swaps

SwapClear, a UK-based CCP for interest rate swaps, was established in September 1999. Its purpose was to reduce counterparty and operational risk and to economise on the use of collateral for the major inter-dealer swap

CCPs for inter-dealer interest-rate swaps already exist

traders.⁹ SwapClear initially provided clearing for *plain vanilla* interest rate swaps of up to 10 years' maturity in US dollars, euros, Japanese yen and British pounds. Since then, the range of products, currencies and maturities cleared has been expanded to include 14 currencies and 22 indices. SwapClear estimates that they clear about 60 per cent of the global market for interbank OTC interest rate swaps. In May 2009, they announced plans to extend interest rate swap clearing beyond banks in the second half of 2009. Meanwhile, in 2008, two new CCPs for interest rate swaps were introduced in the United States.¹⁰ At this writing, transaction volumes in these two American CCPs have remained low.

Credit default swaps

Over the past year, several measures have been introduced in CDS markets that should help facilitate the introduction of CCPs. First, industry on both sides of the Atlantic has moved toward standardising CDS contracts and trade practices. These initiatives have included introducing a small number of standardised fixed coupons as well as simplifying the set of conditions that trigger payments – so-called “default events.” Also, following the March 2008 takeover of Bear Stearns, *close-out netting* was introduced to avoid the complications that arise when a protection seller fails. These rules allow similar contracts to be settled simultaneously rather than one at a time. Finally, in an effort to lower operational risks, work is proceeding to develop a new framework for resolving disputes about contract valuation and posting of collateral.

The past year has also witnessed the introduction of several new CCPs for CDS, and more are likely to follow. In the United States, ICE Trust, owned by the Intercontinental Exchange (ICE), became operational in March 2009. So far ICE has focused on the most actively traded North American CDS index contracts. In the period since March up to mid-August, they cleared just over 21,000 contracts with a notional value of \$1.8 trillion – still a relatively small fraction of the market.

In Europe, two CCPs – ICE Clear Europe, operated by ICE, and Eurex Credit Clear, operated by Eurex – began operation in the last week of July. And a third CCP, LCH.Clearnet, is expected to become operational by the end of this year. These CCPs for CDS focus on making it possible for market participants, in particular the larger dealers, to reduce counterparty exposures to the more actively traded single-name CDS contracts and to standardised CDS indices.

As for market transparency, an interesting new development has been the creation by Depository Trust & Clearing Corporation (DTCC) of a centralised trade-data repository or warehouse. The warehouse provides nearly complete

CCPs are being introduced in both the US and European CDS markets

⁹ SwapClear is part of LCH.Clearnet which is a recognised clearing house under UK law and is supervised by the Financial Services Authority.

¹⁰ One of them, CME Cleared Swaps, is linked to the Chicago Mercantile Exchange, and the other, International Derivatives Clearing Group, is linked to Nasdaq.

Impact of multilateral netting on CDS volumes for selected reference entities			
	Gross notional ¹	Net notional ²	Net over gross ³
<i>Financials</i>			
Deutsche Bank	70.9	8.0	11
Morgan Stanley	85.2	6.5	8
Bank of America	121.4	6.0	5
Goldman Sachs	81.8	5.3	6
<i>Corporates</i>			
General Electric	81.5	10.9	13
Deutsche Telecom	63.0	3.9	6
Telefonica	51.8	3.8	7
France Telecom	63.3	3.6	6
Average, top 1,000 entities	14,621.5	1,401.7	10
For the week ending 6 March 2009.			
¹ The sum of all contracts bought (or, equivalently, sold), in billions of US dollars. ² The sum of net protection bought – or, equivalently, of net protection sold – in billions of US dollars. ³ In per cent.			
Source: DTCC.			Table 2

coverage of outstanding standardised single- and multi-name CDS contracts worldwide. Less standardised CDS contracts, including those that insure complex debt instruments such as CDOs and other credit derivatives, are not covered. The DTCC publishes weekly information on notional amounts outstanding, by counterparty type, on both a gross and net (after netting) basis for individual reference entities (Table 2).

Challenges related to the introduction of central counterparties

Market participants and regulators face a number of challenges if the introduction of new CCPs for OTC derivatives is to be a success. As our previous discussion implies, a CCP concentrates counterparty and operational risks and the responsibilities for risk management. Therefore, it is critical that CCPs have both effective risk control and adequate financial resources. In addition to sufficient capital provided by the members, this means clearer and stricter rules on the posting of collateral to cover counterparty exposures than has been seen in bilateral OTC derivatives markets.

CCPs must be very robust ...

Because of the damage that would occur in the event of a disruption, central banks and securities regulators have taken a strong interest in defining best practices for CCP risk management. This can be seen, for example, in the detailed and comprehensive international standards for CCP risk management published jointly in 2004 by the Committee on Payment and Settlement Systems (CPSS) and the International Organization of Securities Commissions (IOSCO) (CPSS and the Technical Committee of IOSCO (2004)).¹¹ These standards were prepared for financial contracts, including derivatives traded on securities exchanges and in OTC markets. Nevertheless, applying them to

... which implies strong risk management standards

¹¹ The CPSS has also more recently considered the potential for expanding the use of CCPs to reduce counterparty risks (CPSS (2007)).

CCPs for CDS contracts will likely involve some interpretation. The introduction of CCPs for credit derivatives therefore raises the question of whether changes are necessary to the 2004 CPSS/IOSCO recommendations. For example, a clear procedure is needed for defining a default event, for valuation, and for margin. And, to avoid cross-border distortions, uniform application of standards is needed across all CCPs handling derivatives. Thus, in July 2009, the CPSS and IOSCO created a working group to review the application of the 2004 standards to clearing arrangements for OTC derivatives, with the aim of publishing their findings next year.¹² IOSCO has also focused on standardisation, increased transparency and minimising the risk of CCP failure in its recommendations for reform of CDS market infrastructure (IOSCO (2009)).

CCPs have generally worked well

It is worth emphasising that during the recent financial crisis, existing CCP arrangements have performed well. Good risk management and adequate capitalisation have ensured a well-functioning mutualisation of counterparty risk. Nevertheless, the crisis has exposed the need for international coordination of the oversight of systemically important CCPs by central banks and other relevant authorities. One important and as yet unresolved question is whether CCPs should have access to central bank credit facilities and, if so, when. Keeping a CCP liquid in the face of the failure of one or more participants requires that liquidity be available somewhere. Currently, however, access to central bank liquidity varies widely across jurisdictions.

Public support likely needed in crisis periods

The need to insure continued operation in the face of a systemic event, in which a number of participants collapse simultaneously, suggests that CCPs may require public sector support. The global nature of most derivatives markets, and the resulting need to coordinate liquidity (and possibly capital) support internationally, will pose a significant challenge. As is always the case, to minimise market-wide uncertainty during periods of stress, there may be a case for making the nature of any support clear *ex ante*; on the other hand, moral hazard risks argue for some degree of “constructive ambiguity” about the scale and terms of possible public sector assistance.

Moreover, the introduction of CCPs alone is not likely to be sufficient to ensure that OTC derivatives markets operate efficiently and remain resilient in the face of large shocks. It is important to complement the introduction of CCPs with improvements in trading and settlement infrastructure. This includes the greater use of automated trading, registration of all trades in central data depositories, and enhanced risk management and disclosure requirements for market participants themselves.

It is likely that more CCPs will be created. That development would have both advantages and disadvantages. For instance, having several CCPs could provide a level of redundancy in case of operational problems, and it could also

¹² The European System of Central Banks and the Committee of European Securities Regulators recently published recommendations for securities settlement systems and central counterparties in the European Union (ESCB and CESR (2009)). The recommendations for CCPs are consistent with the 2004 CPSS/IOSCO recommendations. However, they also consider a wide range of aspects relevant for the clearing of OTC derivatives in general and credit derivatives in particular, and they address the risks of clearing OTC derivatives.

help encourage technological competition and innovation. But these benefits could very well be outweighed by a variety of costs. First, with multiple CCPs, large market players would need to post equity capital and initial margin in each one. Second, the existence of multiple CCPs makes regulatory consistency important in order to prevent regulatory arbitrage. Third, with several CCPs, someone will have to go through the costly process of consolidating trading and position information. Finally, multilateral netting will be more difficult unless sufficient international coordination takes place across CCPs handling similar instruments. So while a single CCP would almost surely reduce systemic risk relative to a bilateral OTC system, multiple CCPs may not (Duffie and Zhu (2009)). This might make it less attractive for market participants to move their trades to CCPs.

Multiple CCPs
increases need for
international
coordination

Concluding remarks

Experience during the recent crisis points to the need for fundamental improvements in the management of counterparty risk and transparency in OTC derivatives markets. The introduction of well-designed central counterparties (CCPs) can help achieve those gains in several ways. First, concentrating outstanding derivatives positions of participating buyers and sellers in a limited number of CCPs can reduce counterparty risk, making the entire financial system safer. Second, CCPs can help bring about significant gains in operational efficiency through the standardisation of risk management and more efficient management of collateral. Third, by facilitating data collection, CCPs can contribute significantly to improving market transparency. Fourth, assuming high-quality risk management, CCPs should increase the amount of collateral and capital available to absorb potential losses. And finally, the introduction of CCPs may help reduce the contribution of derivatives to the procyclicality of the financial system.

The introduction of CCPs alone, however, is not sufficient to ensure that OTC derivatives markets operate efficiently and remain resilient. It is important to complement the introduction of CCPs with improvements in trading and settlement infrastructure.

Finally, introducing CCPs for nonstandard, custom-made OTC derivatives may not be feasible or even desirable (Pirrong (2009)). OTC markets have been an engine of financial innovation and continue to offer cost-effective and well-tailored risk reduction products. Preserving the incentives to create new financial instruments is important – and here, OTC markets have clear advantages. As new contract types become more widely used, however, the overall benefits from using a central counterparty will likely outweigh the flexibility offered by the over-the-counter format.

Glossary

Bilateral netting: offsetting of positions between two counterparties.

Central counterparty (CCP): an entity that interposes itself between counterparties to contracts traded in one or more financial markets, becoming the buyer to every seller and seller to every buyer.

Close-out netting: an arrangement to settle all contracted – but not yet due – obligations to, and claims on, a counterparty through a single net payment, immediately upon the occurrence of one of the events of default as defined in the contract.

Counterparty credit risk: the risk that a counterparty will not settle an obligation in full value, either when due or at any time thereafter.

Credit default swap (CDS): a credit derivative contract covering the risk that a specified entity will default. Following a defined default event, the protection buyer receives a payment from the protection seller to compensate for credit losses. In return, the protection buyer pays a premium to the protection seller until maturity or a default event, whichever comes first. A CDS refers to either single entities (“single-name”) or baskets of several entities (“multi-name”).

Gross credit exposures: the gross value of contracts that have a positive market value after taking account of legally enforceable *bilateral netting* agreements.

Gross market value: the sum of the absolute values of all open contracts with either positive or negative replacement values at the prevailing market price. The term “gross” is used to indicate that contracts with positive and negative replacement values with the same counterparty are not netted.

Interest rate swap: an agreement between two parties in which one stream of future interest payments is exchanged for another based on a specified *notional amount*. Interest rate swaps often exchange a fixed payment for a floating interest payment (often linked to a Libor rate). This notional amount is used only for calculating the size of cash flows to be exchanged.

Marking to market: the revaluation of open positions at current market prices and the calculation of any gains or losses since the last valuation.

Multilateral netting: arithmetically performed by summing each participant’s *bilateral net* positions with those of the other participants to arrive at a multilateral net position. Such netting is often conducted through a *CCP*. The multilateral net position represents the bilateral net position between each participant and the *CCP*.

Notional amount outstanding: the reference amount from which contractual payments are calculated. The sum of notional amounts outstanding is one measure of market size.

Plain vanilla transactions: generally, a type of derivatives transaction with simple, common terms that can be processed electronically. Transactions with unusual or less common features are often referred to as “exotic”, “structured” or “bespoke”.

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