



## OTC Trading: Impact of The CCP Model

### Recent trends in the OTC Trade scenario & key impacts for Market participants under the new CCP model

#### Executive Summary

Following the global financial crisis, there has been much investigation by regulatory agencies as to the causes. Over The Counter derivatives (OTC) are very profitable for financial firms but have been identified as one of the potential causes. As part of the corrective action, the common agreement has been to move the OTC trading system to a Central Clearing Party (CCP) platform. In the new approach, bilateral contracts between two counterparties will not exist. The CCP would become the intermediary. The seller would sell the contract to the CCP and the buyer would buy the contract from the CCP. This will introduce an effective monitoring conduit as the CCP can stipulate the required collateral and monitor effectively the positions of the two parties under the new regulatory changes.

This paper outlines the background need for OTC derivatives and the objective for CCP clearing. It then takes a look at the type of CCP models that are evolving in the market. They can be established as a 'no profit' platform under the ownership of market participants or they can be run on a profit basis while being monitored by the regulator. They also differ based on their capital / margin requirements for new members, vital infrastructure and the basic clearing process flow. There are stringent membership requirements for CCP that have led to the development of a new service called Client Clearing, which extends the benefit of clearing services, through CCP members, to participants who are not members of the CCP. A comparison between the traditional OTC trade model and the new trade flow under the CCP is outlined later in this paper.

The trends in the OTC industry under this new regulatory environment, and the impact of the CCP platform are discussed in detail. A key focus of the paper is to explain at a more granular level, the impact that the OTC derivatives clearing will have on market participants and the changes and enhancements they will need to make to internal processes in order to serve themselves and their clients efficiently.

#### Introduction: The Need for Central Counterparty Clearing

**The OTC Derivatives market is dominated by a few large financial institutions.**

The class of instruments known as Derivatives covers a wide range of instruments many of which have been standardised and traded on stock exchanges for more than a couple of decades. Such derivative instruments include futures and options with various underlying asset classes such as equities, fixed income and currencies. These asset classes have traditionally been very liquid and as a result their corresponding derivatives are easily standardised. The traditional exchange traded derivatives are well served to transfer market risk among participants.

However, instruments that transfer other kinds of risk such as credit risk and interest rate risk have proved difficult to standardise for the following reasons:

Derivative instruments by their nature require two participants to take an opposing view on a certain underlying asset. It is easy to find a counterparty who takes an opposing view on the direction of an equity or the direction of the credit spread of the issuer of a bond because these risks are easily perceived based on a few parameters. However, in the case of interest

rate risk, it is not sufficient for the counterparty to take a view on just a few parameters. The valuation of interest rate derivatives is a function of the frequency of payments, the particular floating rate involved and the entire yield curve rather than just a single interest rate. Similarly, valuation of credit derivatives is complex because of the difficulty in estimating the probability of default, and standardisation is difficult due to the various kinds of default events possible.

As a result, trades in complex derivative transactions are low. However that does not mean that these derivatives do not fulfill a need. For instance a bank that has long term floating rate liabilities may well want to hedge their interest rate risk. The transaction adds value to this party, although finding a counterparty may be difficult as it would be rare for another party to have the exact opposite hedging requirement. The role of market makers has thus become key for the non-exchange traded Over the Counter (OTC) derivatives market. This means that certain large financial institutions with enough capital are offering to enter into such transactions (in either direction) with end users who want to hedge their risk. These market makers hedge their own risk either by transacting with another end user or with another market maker in the opposite direction.

#### Challenges that arise due to market dominance by a few large banks

The OTC derivatives market is dominated by a few large banks. Although the role of these institutions resolved the issue of liquidity and ease of finding counterparty members, it also introduced the following problems:

1. A few banking institutions emerged as the counterparties for over 90% of the overall OTC trade transactions. These banks were independent entities with several lines of businesses other than simply market making. Many of these lines of business involved active risk taking on the banks' proprietary books. If any of these banks became insolvent, it meant that a significant proportion of OTC trades would be defaulted on. As the large banks also had a lot of OTC trade volumes among themselves (for hedging purposes), default on the part of one bank also impacted other market makers. To make matters worse, unlike standard exchange trades, OTC trades were not regulated and there were no authentic estimates on the volume of trades that each bank was involved in, and therefore no estimate of the impact on the market that a default by a market maker may cause. Thus in the absence of any regulation, market makers themselves had very little idea on how much risk they were exposed to by way of exposure to other market makers.
2. OTC trades by definition were not traded on exchanges and hence the sole responsibility of settling the trades was with the two parties involved. This meant that market participants

especially the banks, had to maintain bilateral clearing relationships and legal agreements with numerous other parties. Lack of standardisation for clearing agreements meant slow paperwork. Additionally, bilateral clearing relationships meant that whenever trades were marked to market, the party in the money would collect collateral from the other party in order to mitigate the risk of default. A typical market making bank would have clearing relationships with numerous clients and would therefore need to maintain collateral payment processes with each party. Such bilateral clearing relationships had one significant disadvantage. The collateral collected by parties from other counterparties was not typically segregated from the party's own assets and hence if any party went bankrupt, the counterparties who had deposited collateral with the bankrupt parties typically could not recover their collateral.

#### Need for central counterparties

To mitigate the above disadvantages of bilateral clearing, central counterparties have now emerged to facilitate clearing of OTC derivative trades. Central counterparty clearing involves every trade between two participants getting intermediated by the clearing house, so that the clearing house in effect becomes the counterparty for both the original trade participants. This approach has the advantage of requiring fewer clearing relationship agreements (each party with the clearing house) but also allows trade participants to mitigate their counterparty credit risk. The counterparty credit risk is mitigated because the clearing house is the only counterparty for trade participants and it is a firm which does not indulge in taking active risk onto its books through other lines of businesses.

#### Variations Among The Clearing Houses

Although this seems like panacea for the OTC market, it is now imperative that the risk of default by the clearing house itself is mitigated to the maximum degree possible as it is counterparty for every market participant, and a default will have a catastrophic impact on the market. The two most popular clearing house business models are:

1. **Not for profit - owned by participants:** Such a business model involves the clearing house being owned by the major market participants (banks which are the market makers) so that the protection layer for the clearing house is the capital infused by these participants. As such, the cost of this infused 'protection' capital can be thought of as a cost borne by the major market makers to mitigate the risk of clearing house default, and therefore facilitate a healthy market which is key to their market making business.
2. **For Profit - monitored by the regulator:** The clearing house, if privately run, will be a For Profit entity. The

risk of default is mitigated by way of regulation which mandates a certain threshold of capital requirement and also restricts the clearing house from deploying its funds in any kind of active risk strategy. In this model, the cost to market participants is charged through higher transaction costs.

Different clearing houses differ in the services provided although all fulfill the basic purpose of providing CCP services. One of the major differences is the type of products supported by the clearing house. For instance, the below table shows products supported by various different CCPs.

## Currently operational Over the Counter Derivative Central Counterparties

Platform (Domicile)	Contact Type				
	Interest rate swap	Credit Default swap	Foreign exchange	Equities	Other <sup>1</sup>
CME Clearing (U.S.)		✓			✓
BM&FBovespa	✓		✓	✓	✓
Eurex Clearing AG (Germany)	✓	✓		✓	✓
Euronext/LIFFE BClear (U.K.)					✓
ICE Clear Canada (Canada)					✓
ICE Clear Europe (U.K.)		✓			✓
ICE Trust (U.S.)		✓			
LCH. Clearnet U.K.)	✓				✓
LCH. Clearnet SA (France)		✓			
IDCG International Derivatives					
Clearinghouse (U.S.)	✓				✓
NASDAQ OMX Stockholm AB (Sweden)					✓
NOS Clearing (Norway)					✓
SGX Asia Clearing (Singapore)					✓

Source:IMF staff.

<sup>1</sup>Other includes commodities, energy, freight, and macroeconomic (e.g. inflation) indicators.

Additionally, clearing houses may differ on factors such as:

- 1. Membership eligibility criteria:** This criteria usually relates to capital requirements that a prospective member needs to satisfy. Failure to meet these requirements would mean that the participant cannot be a member of the clearing house and can only clear their trades through that clearing house only through another member and only in the event that the clearing house offers client clearing services (described in the next section).
- 2. Margin requirements:** This refers to the methodology used by clearing houses to calculate margin requirements for trades that are cleared. Initial margin requirements vary by product and also by clearing house due to different methodologies adopted.
- 3. Key infrastructure:** This includes connectivity to ECNs, trade repositories, real time or batch processing, reporting capability. Infrastructure supported by a clearing house is a feature of key importance to prospective members, as that dictates the mode in which they would have to conduct their trades and build their internal processes.
- 4. Workflow for the clearing process:** The workflow followed in the clearing process differs across clearing houses. For instance, London Clearing House (LCH) clears the trade after the Clearing Broker has stepped into the trade between the Client and the Executing Broker. CME Group Inc. is the world's largest futures exchange and has, on the other hand, proposed that both Client and Executing Broker will have their own Clearing Brokers and the Clearing Brokers will be informed of the trade after the Clearing House has agreed to clear the trade. The way in which allocations are handled by Clearing houses also differs. In the LCH workflow, a block trade is one where the Clearing Broker steps in and the child trade splits are later individually cleared by the Clearing house. On CME, the client can choose a different clearing broker for each split and each split proceeds independently through the clearing process right from the onset.

## Client Clearing

A typical central counterparty platform will only intermediate trades where both participants are members of the clearing house (CCP). This is because the CCP needs both participants to deposit initial margin and then pay or receive variation margin to either party daily, depending on the Mark to Market (MTM) value of the trade. The CCP therefore needs to have a clearing relationship with all parties. This basic approach however meant that a trade between a CCP member and a non-CCP member could not be cleared by the CCP. Most buy-side firms are not CCP members and therefore could not benefit from the advantages of a CCP. In recognition of this, certain clearing houses (LCH Clearnet for example) have started offering a relatively new service called Client Clearing.

To illustrate an example of a Client Clearing workflow, we look at how LCH offers this service. The exact process may differ for other clearing houses but the concept remains the same. Client clearing at LCH refers to the process of a central counterparty stepping in to clear the trade between a Bank and a client (bank vs. client). This process differs from clearing of interbank trades because clients are not typically members of LCH.

In the LCH Client Clearing process, the CCP first steps in between the bank and the client. However, since the client is not a member of the clearing house, the client and the CCP cannot face each other directly in a trade. Therefore, the Clearing Broker (CB) again steps in between the CCP and the client.

The above process results in two more trades (referred to hereafter as BacktoBack trades) getting created in addition to the bank vs. client:

1. Bank vs. CCP (on the Bank's House CCP account)
2. CCP vs. Bank (on the Bank's Client CCP account)

This process provides the client the same level of protection from counterparty credit risk as enjoyed by members of the LCH in an Interbank trade. This is the process termed as Client Clearing.

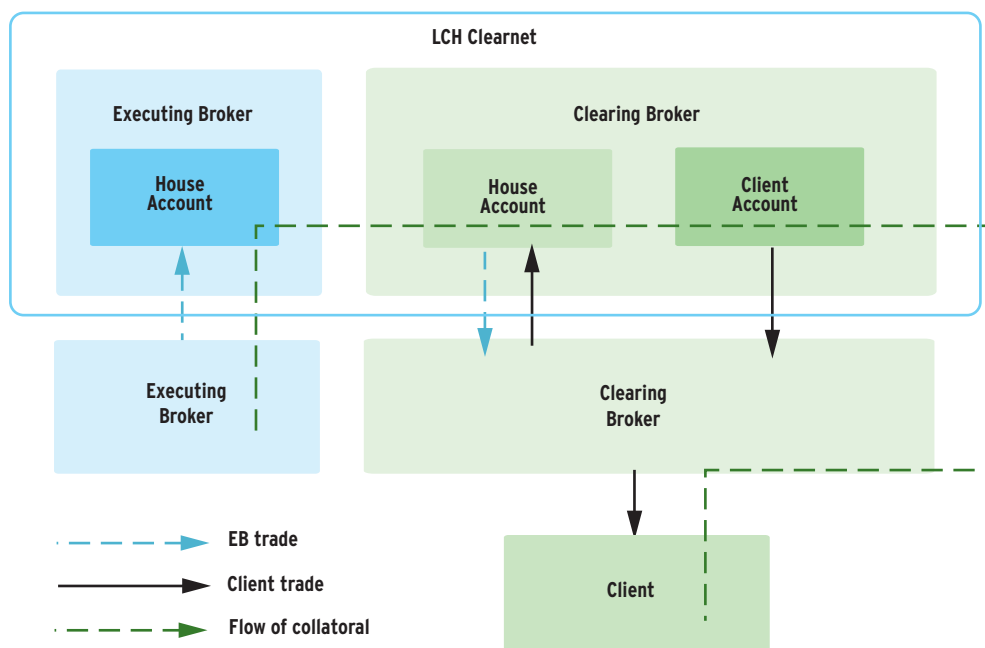
Note that the original Primary trade was between the Executing Broker (EB) and the client, and after the EB gave up the trade to the Clearing Broker (CB), two trades had resulted: CB vs. EB and CB vs. client.

The CB vs. EB trade is an Interbank trade and post clearing at LCH, resulted in two trades getting created CB vs. LCH and EB vs. LCH. The CB vs. Client trade goes through the process of Client Clearing as described earlier and results in three trades.

Thus, an initial Primary trade between the Executing Broker (EB) and the Client finally results in five trades getting created. The trades evolve in the following manner:

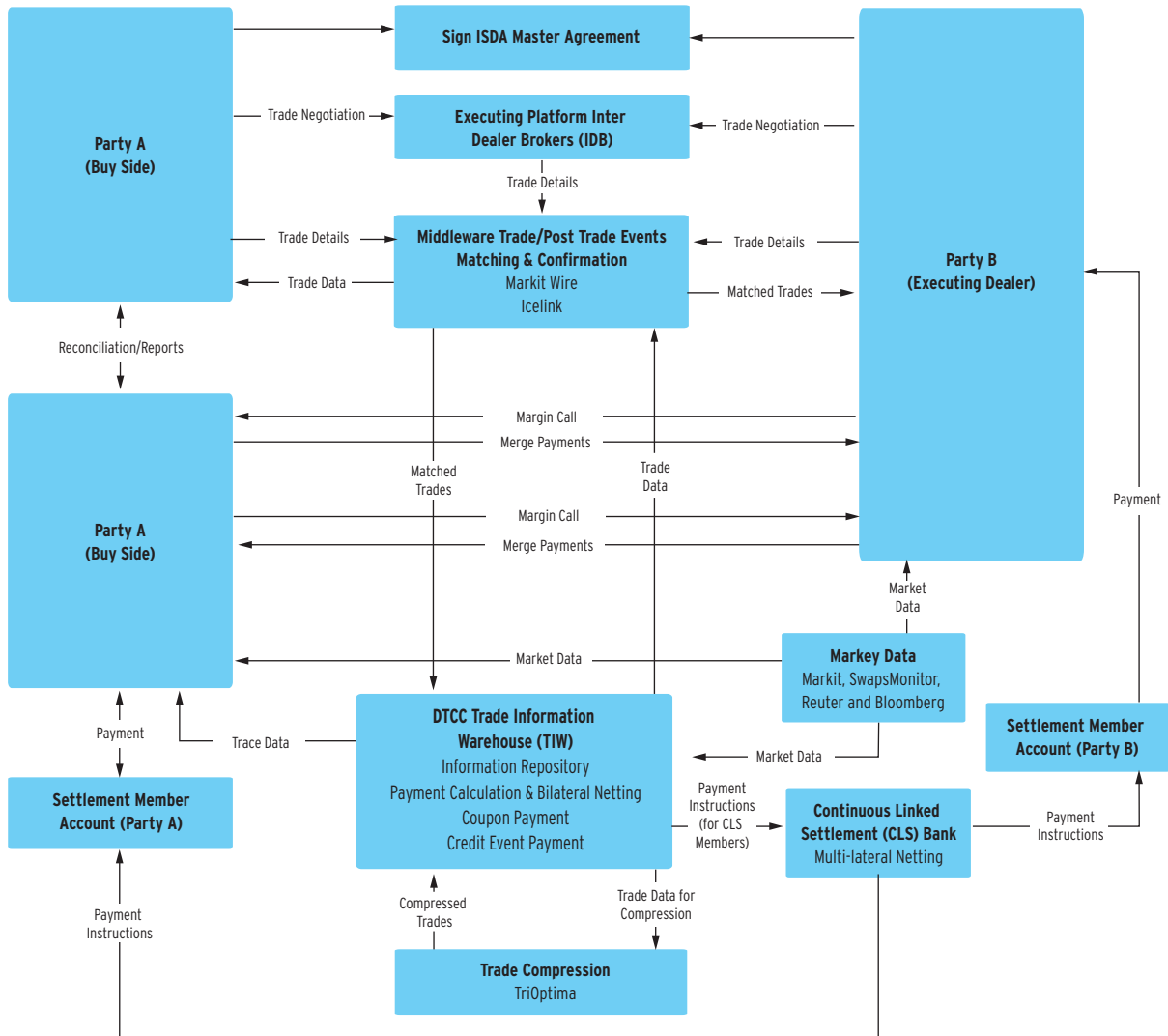
- Step 1. Primary trade**
  - a. Client vs. EB
- Step 2. Secondary trades post give-up by EB**
  - a. Client vs. CB
  - b. CB vs. EB
- Step 3. Trades created post clearing of the two Secondary trades**
  - a. Client vs. CB
  - b. CB vs. CCP (CB's Client CCP account; as related to the Client vs. CB trade)
  - c. CCP vs. CB (CB's house CCP account; as related to the Client vs. CB trade)
  - d. CB vs. CCP (CB's house CCP account; as related to the CB vs. EB trade)
  - e. CCP vs. EB (not reflected in the CB's internal systems; related to the CB vs. EB trade)

The end state of each entity (EB, CCP and client) and the direction of the trades and path of collateral flow can be depicted as shown below:



# Traditional And The New CCP Model - A Comparison

## TRADITIONAL MODEL



**International Swaps and Derivatives Association (ISDA)**  
 Publishes Master Agreements for OTC Derivatives  
 Publishes Credit Events

**Regulators**  
 Securities and Exchange Commission (SEC)  
 Financial Services Authority (FSA)

Bilateral Clearing  
 Large number of settlement transactions  
 Systemic ripple effect of an individual entity's failure  
 High total Credit exposure

Inadequate Collateral & Default Management  
 Uncollateralized OTC exposures  
 Lack of standardized default Management process  
 Unilateral collateral work against weaker counterparty if the stronger defaults

Trade repository not mandatory  
 Lack of transparency in reporting trade positions  
 Regulatory oversight impacted

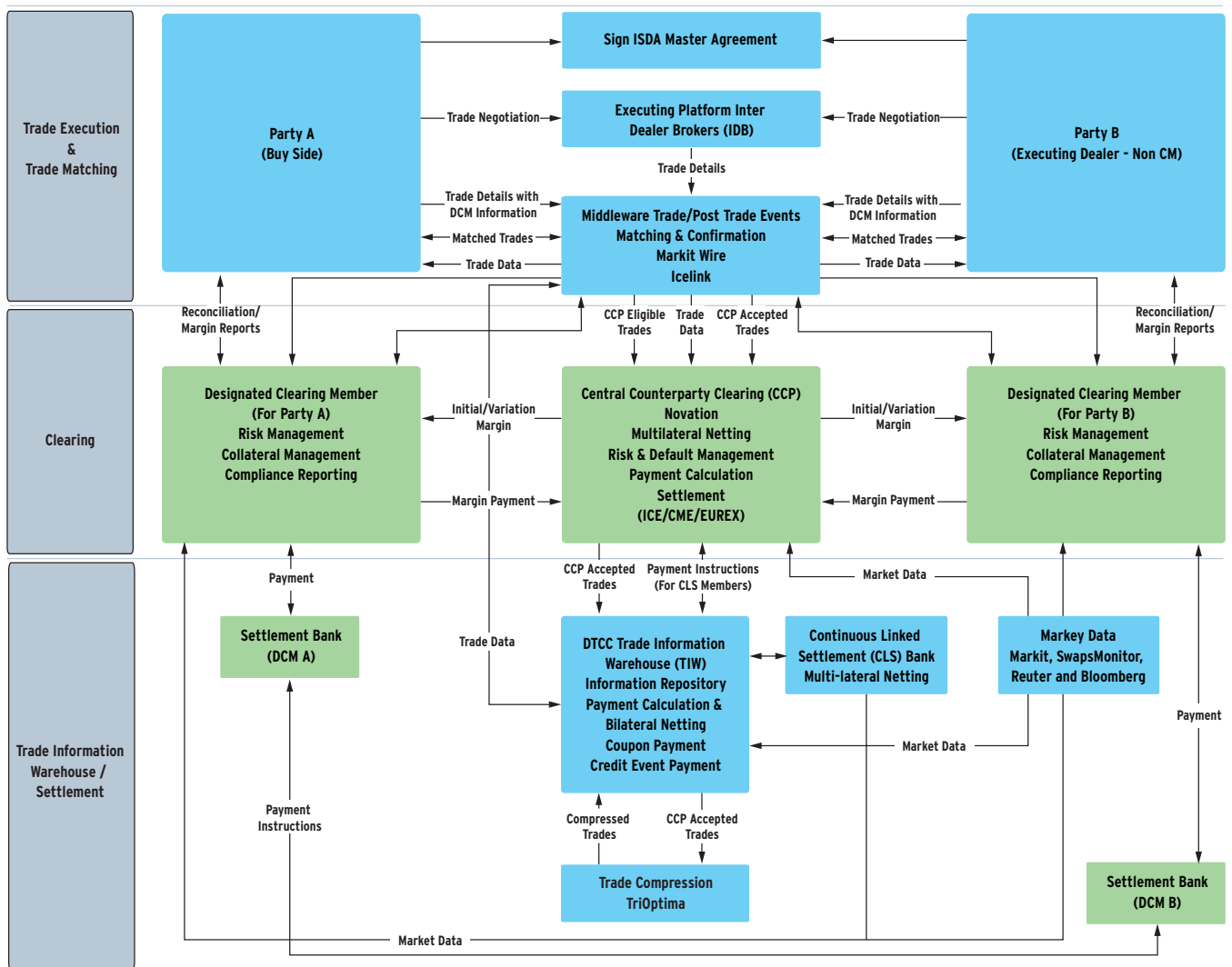
Non Standardised method of valuing exotics and collateral  
 Disputes arise between counterparties when margin calls are made

\* Represents the Credit Derivatives landscape

The limitations in the traditional model are addressed by some legislative actions as follows -

Regulations	Description	Proposed By
CCP Clearing	All standardized derivatives must be cleared by a clearing house	Dodd Frank /UK/G-20
Exchange Trading -OTC	All CCP cleared trades have to be executed via an exchange or swap exchange facility(SEF) with multiple participants posting bids and offers.	Dodd Frank /UK/G-20
Post Trade Transparency	All OTC trades must be reported to a central repository.	Dodd Frank /UK/G-20
Position Limits	Dodd Frank Act mandates CFTC to impose position limits across different markets, including energy, agriculture and certain OTC derivatives	Dodd Frank
Reporting	Large Hedge Funds and Private Equity Funds to register with SEC and report trading activities, positions etc of OTC trades	Dodd Frank
Regulatory coordination	Setting up of the OTC Derivatives Regulatory forum in Sep 2009 to formulate a global approach to regulate OTC derivative trades	Global regulators
Capital requirements	Higher counterparty capital charges imposed on banks and dealers on bilaterally cleared OTC transactions	Basel/G-20
Stiff margin requirements for CCP	Sufficient margin "to cover losses that result from at least 99 percent of price movements over an appropriate time horizon"	ESCB/CESR

## NEW CCP MODEL



### Changes in new CCP model

- Notes
1. Coupons Payments and credit event payments for CDS are usually settled through CLS. Margin Calls are directly settled by CM with CCP through designated banks.
  2. CME however uses its own infrastructure for settlement and just sends the trade details to Trade Information Warehouse (TIW).
  3. CCP uses the DtCC link to CLS for its settlements.
  4. For IRS, trades are mostly cleared through LCH Clearnet's swap clear service. Settlements are through BOE (GBP & Euro), Citibank (USD), HSBC (Other currencies).

## Advantages of multilateral clearing with CCP

1. **Reduced Credit Risk**
  - a. Multilateral netting reduces overall exposure
  - b. Robust margining methodology & Collaterals
  - c. Cross margining benefit
  - d. Well defined default management procedure
2. **Reduced Operational Risk**
  - a. Automated operational procedures
  - b. Transparency in positions and collateral reporting by independent entity
3. **Reduced Systemic & Legal Risk**
  - a. Multilateral netting reduces knock on failures
  - b. CCP access to central bank liquidity
  - c. Legal enforceability possible

## Disadvantages of CCP

1. **Risk of CCP failure**
  - a. Concentration of risk at CCP - what if CCP fails?
  - b. Mutualization risk by CM
2. **Standardization issues**
  - a. Product complexity & valuation of illiquid products
  - b. ETD Risk management methodology may not be equally effective for OTC
3. **Interoperability between multiple CCP**
  - a. Differences in Risk Management & Default management approach
  - b. Lack of coordination in managing exposures across CCPs
  - c. Absence of connectivity for transferring information

## Trends - The Cognizant View

The trend in the OTC derivatives market is towards central counterparty clearing of an increasing number of product types. As discussed, this clearly benefits the market as a whole. However, it also makes it imperative for market participants to develop internal processes that will be required by this shift to central counterparty clearing.

Trend	Impact on Market participants
Multiple clearing houses are offering OTC clearing services	Clearing houses will need to develop risk management policies and a business model to mitigate the risk of their own default
Standardization of OTC derivatives products	Need to ensure that their trading systems and internal tools can support the new product standards
Increasing number of products 'Clearing Eligible'	Need to upgrade their internal processes so that they can reconcile their records with clearing houses and also provide reports to clients
Development of consolidated trade repository for increasing number of asset classes	Currently DTCC trade warehouse acts as a repository for a large proportion of CDS trades. Other asset class trades are soon likely to have trade repositories where market participants will need to report their OTC trades (bilateral or cleared)
Default Management Procedures to be specified by CCPs	Need to develop internal processes to deal with their obligations to the clearing house as well as to clients as Backup clearing brokers
Volume of post trade events on cleared trades will increase as more OTC trades get cleared by CCPs	Post trade events on cleared trades involve declearing and reclearing of trades. Market participants need internal systems which can allow STP of these events
A large number of existing bilateral trades will be converted to Triparty clearing trades	Need to develop internal processes for backloading old trades (processed through paper agreements) onto affirmation platforms (like MarkitWire) so that the trades can be cleared through the appropriate CCP
OTC trades sent to CCPs will be legally affirmed through electronic platforms	Need to deal with increasing volumes and therefore internal processes such as Limit monitoring will necessarily be required to be done through automated systems rather than in a manual fashion by the middle Office personnel.
Volume of trades in complex products to increase as a result of CCP clearing of OTC trades	Need to upgrade their internal risk management systems so that they are able to process exotic instruments
CCPs will perform a daily MTM valuation and impose margin requirements on trade participants	Need to develop processes to monitor in real time the margin requirements of clients and themselves and also process payments to/from the CCP.
CCP clearing results in fewer counterparties to deal with for clearing brokers	Greater opportunity for trade compression and therefore need for internal processes for achieving the same

### Standardisation of OTC derivatives:

Central counterparty clearing involves the clearing house becoming a counterparty to both the participants of the original trade. To mitigate the risk of default by any of these parties, the clearing house charges an initial margin requirement. Additionally, the trades are marked to market daily and any variation in the NPV results in the clearing house demanding variation margin from one of the parties and transferring it into the account of the other. The margining process necessarily requires the clearing house to be able to perform a risk assessment and daily valuation of the trade using market data. This process requires standardization of the products which the clearing house can support.

The implication is that trading and risk management systems used by market participants must be able to process the standardized products supported by clearing houses.

### Increasing the number of products eligible for clearing

Due to the benefits of central counterparty clearing, clearing houses are standardizing products and making more products eligible for clearing. This means that clearing houses are offering to intermediate a greater variety of OTC derivative trades. As we have already seen the benefits of CCP clearing, this trend will clearly encourage higher volumes in such trades.

When buy-side firms i.e. non-market makers trade with a bank, banks usually provide reports to the clients that inform them of the trades undertaken by them. Any processes developed in this regard by banks may have been designed taking into account bilateral trades. However, with the clearing house now becoming a counterparty, the reporting process will need to be upgraded to recognize the fact that the client was the original counterparty of the trade.

Additionally, banks will need to develop processes for reconciling their trading activity with reports provided by the clearing house. In this regard too, the fact that the counterparty gets amended from the client to the clearing house will need to be taken into account.

### Development of consolidated trade repository for increasing number of asset classes:

Lack of transparency was a major problem with the OTC derivatives market when bilateral trades were the norm. Even before the trend of CCP clearing had caught up, the idea of a consolidated trade repository for OTC derivative trades was already mooted by regulators in an attempt to gain some insight into this usually opaque market.

In spite of CCP clearing, the onus of sending trade details to the warehouse will be with the original parties, as the trade is legally agreed bilaterally between the parties, and only later is cleared by the CCP. The trend of CCP clearing is poised to increase volumes of OTC trades. Hence, if the process to report trade to the repository was semi automated earlier, banks may now wish to automate the reporting of trades to the trade warehouse in a more streamlined manner.

### Default Management Procedures to be specified by CCPs

One of the major reasons why CCPs became popular was to mitigate the risk of counterparty default. Hence it is no surprise that every CCP has a detailed set of procedures on how a default scenario is handled. Typically defaults by a clearing house member are handled by either transferring out certain positions to backup counterparties, or by auctioning off the portfolio of the defaulting member to the other clearing house members. The details of this process are beyond the scope of this paper but the gist is that clearing house members have certain obligations to the clearing house in a default scenario.

For instance, members may act as the backup clearing brokers for certain clients and if the clearing broker for those clients defaults, the backup clearing broker may be required to take up those positions into its books after LCH transfers the appropriate amount of collateral into the accepting member's account. The clearing house also often makes it mandatory for all members to bid for a defaulting member's portfolio, and if such a bid by a member emerges successful, the winning member would need to update its books with the new trades. Additionally, members who have been designated as backup clearing brokers by clients may want to develop tools that help them quickly evaluate the portfolios they may be asked to take over, in case of a default by another member. Such tools help in taking optimal decisions regarding whether to accept another client's portfolio in whole.

It may well be true that default is an uncommon scenario and as such, members may not find it of value to invest a lot of effort into automating the entire process involved in taking up new positions assigned to them, due to default by another member. However, at the minimum, internal processes need to be developed so that when meeting clearing house obligations, a member can update its books and risk management systems appropriately to reflect the new positions taken on.



## Post trade events

In the case of bilateral trades, post trade events were a simple case of one party initiating a trade event and the other affirming the same. For CCP cleared trades, though the process remains principally the same, the trade has to declare for the post trade event to take place and then re-clear (if the amended trade is still clearing eligible). This means that an STP process at a bank that worked well in processing post trade events on bilateral trades will not in general, be able to process post trade events on cleared trades, without an upgrade.

On an independent note, the fact that OTC trade volumes are expected to rise as a result of the benefits of CCP clearing itself suggests that banks may want to invest in infrastructure to STP post trade events even if they currently process these manually.

## Backloading / Backclearing of trades

With the onset of OTC clearing, most parties find it beneficial to clear an eligible trade through the CCP. It is therefore quite likely that clients would want to clear their existing bilateral trades. Such bilateral trades may well have been processed through paper affirmation. Since CCPs require trades to be on an electronic platform, there are two steps that a bank needs to perform to get these trades cleared by the CCP.

- a. Backloading: This step involves creating an electronic version of the bilateral trade based on the paper documentation of the trade.
- b. Backclearing: Once a bilateral trade is created on the electronic platform, the trade is converted to a Triparty trade and sent to the Clearing Broker. The Clearing Broker may be the original market maker (EB) itself or another bank. The Clearing Broker intermediates the trade and ends up creating two bilateral trades (with the EB and the client respectively). These two trades are then sent to the clearing house to be cleared. (The process of clearing a client trade i.e. where the counterparty is not a clearing house member is discussed later in this paper)

As there may be a large number of historical bilateral deals which may need clearing, banks will need to build internal processes that enable them to backload and backclear in bulk.

## Automated step-in by Clearing Brokers

Volumes on OTC derivative trades are set to increase with the advent of CCP clearing. Though this would mean a healthy market and more business for clearing desks, it also means that the affirmation process by a clearing broker needs to be automated to enable STP and facilitate processing of large trade volumes. Consider a triparty trade involving an Executing Broker and a client that is addressed to a Clearing Broker. The clearing broker would typically want to check that the trade is eligible for CCP clearing and would also want to check its own limits against the Client - EB pair. Both these steps may likely have been done manually as long as trade volumes were low. However with higher trade volumes, it is imperative that these steps be automated so that the Clearing Broker can auto-affirm on the electronic platform if an incoming trade is found to meet all eligibility and limit criteria.

## Upgrade of Risk Management Systems

Trades in complex derivatives were low in volume until the advent of CCP Clearing. Hence some market participants may not have felt the need to invest in risk management capability to deal with such trades nor in developing the capability of daily valuation of such trades. Such trades in relatively complex products will increase in volume thanks to the higher liquidity and default risk mitigation introduced by CCP Clearing. This does mean that banks need to upgrade their risk management systems to specifically deal with these products and produce accurate daily MTM values so that the bank's overall portfolio risk is accurately reflected.

## Upgrade of Collateral Management System

Traditional bilateral trades were rarely marked to market on a daily basis. CCP cleared trades are, however, marked to market by the clearing house daily and accordingly parties are either paid collateral or asked to deposit collateral. This requires banks to monitor collateral requirement feeds from the clearing house and process collateral payments when necessary. An additional complication arises in the case of the CCP Clearing of client trades i.e. trades between a bank (clearing house member) and a client (who is not a clearing house member). In this case, if the client's NPV drops, the bank has to first raise a collateral demand from the client and then

pay this received collateral into the account opened for clients by the bank at the clearing house. To be able to monitor and process collateral payments for a high volume on a daily basis, a capable Collateral Management System is absolutely necessary for clearing house members.

#### **Dealer side compression**

In the absence of CCP Clearing, a Clearing Broker (CB) typically got involved in two equal and opposite trades - CB vs. Client and CB vs. Executing Broker. Thus a Clearing Broker with good volumes would have a large number of trades against various Executing Brokers and these would all need to be settled individually. CCP clearing for trades in Credit and Rates trades means that after clearing of the dealer side trade at the clearing house, the Clearing Broker faces the clearing house irrespective of who the original Executing Broker for the trade was. This provides the opportunity to reduce trade processing costs by clubbing together, where possible, a large number of dealer trades, given that the counterparty for all of them is now the Clearing House.

Dealer side compression is more easily undertaken for CDS trades as there are a lesser number of parameters (other than counterparty) that need to match for successful netting in the case of CDS trades than in Interest Rate Swap trades. To achieve dealer side compression, the Clearing Broker may need the following capabilities:

- Identifying sets of trades in the portfolio which are amenable to compression
- On identifying the set, the Clearing Broker should be able to unwind the individual trades in their systems and book a single trade to replace them
- The Clearing Broker should be able to interface with the Clearing House for the purpose of agreeing trade compression
- The client trades corresponding to the dealer trades that were compressed may or may not need to be compressed depending on whether the client opts to replicate the compression for their own trades.



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## About Cognizant

Cognizant (Nasdaq: CTSH) is a leading provider of information technology, consulting, and business process outsourcing services, dedicated to helping the world's leading companies build stronger businesses. Headquartered in Teaneck, New Jersey (U.S.), Cognizant combines a passion for client satisfaction, technology innovation, deep industry and business process expertise, and a global, collaborative workforce that embodies the future of work. With over 50 delivery centers worldwide and approximately 104,000 employees as of December 31, 2010, Cognizant is a member of the NASDAQ-100, the S&P 500, the Forbes Global 2000, and the Fortune 1000 and is ranked among the top performing and fastest growing companies in the world.

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