

CCP Default Auctions Best Practices

Category 1 Issues: Terminology and Operational Aspects

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1. INTRODUCTION

In the report “Central counterparty default management auctions – Issues for consideration”¹, the Committee on Payments and Market Infrastructures (CPMI) and the Board of the International Organization of Securities Commissions (IOSCO), CPMI-IOSCO described issues for CCPs to consider the design and conduct of default management auctions. The paper builds on the PFMI and joint CPMI-IOSCO work on CCP resilience and recovery, with the aim of enhancing auction practices and procedures. The paper reflects current practices across the industry, as well as responses to a 2019 CPMI-IOSCO discussion paper. The report and its accompanying cover note² observed three areas for further work by the industry, which are directed at the objectives of the 2019 discussion paper. These objectives are, as listed by CPMI-IOSCO:

1. promoting a common understanding of key concepts, key processes (including information needs) and operational aspects that a CCP considers when planning and conducting default management auctions;
2. highlighting key issues and challenges in auctions for those who are looking to develop or to improve upon their auction procedures; and
3. providing context for industry participants to identify opportunities to foster closer collaboration.

The three categories of work were the Policy Steering Group of CPMI-IOSCO sought industry action are:

- The first category includes several terminology and operational issues (where there is broad industry consensus to support further development and where CCPs should be well-positioned to advance these issues, bringing such work to closure.
- The second category includes areas (governance of a CCP’s default management process, use of traders in default management groups, the scope of client participation) where there may be differing views among clearing members, clients, CCPs, and other stakeholders.
- The third category includes potential nascent and emerging practices (synchronizing default management processes, identification of potential hedges between CCPs) that may require further coordination and harmonisation among the default management processes of multiple CCPs.

This paper, developed by CCP12, EACH, FIA, and ISDA, will address the first area of work.

¹ “Central counterparty default management auctions – Issues for consideration” – June 2020: <https://www.bis.org/cpmi/publ/d192.pdf>

² “Central counterparty default management auctions – Issues for consideration” – June 2020: https://www.bis.org/cpmi/publ/d192_covernote.pdf

This paper covers operational topics, in particular a common terminology. The work builds on existing work on auctions that was undertaken by the Default Risk Management Working Group (DRMWG) of the Commodity Futures Trading Commission's Market Risk Advisory Committee (MRAC)³. We stress that as the uniform terminology becomes broadly adopted, CCPs and participants not only have the benefit of easier communication, but also challenges if they do not adhere to conventions (e.g., if invoicing amounts in their auction formats are the opposite of the common sign-convention).

The description of what a potential auction measure or tool is called and how it is implemented does not mean that there is an industry consensus that this tool or measure should be employed or that it is suitable for all types of CCPs or markets. The terminology established in this paper is in English, and CCP rulebooks, regulations, or procedures written in other languages may use an appropriate translation of the concepts.

Clearing houses are designed to operate as a central counterparty (CCP) with a balanced position. It is only in the rare case of a clearing member default that a CCP's balanced book is broken. In such an event, the CCP's default management plan is designed with the specific purpose of restoring the clearing house to a balanced book of positions as soon as reasonably practicable given the nature and extent of the default and the market circumstances at the time.

Generally, the default management process includes: attempting to port any non-defaulting customer positions; outright liquidation of the defaulter's positions on exchange or bi-laterally; possibly hedging the defaulter's positions; an auction of the defaulter's positions; and, as a last resort, position tear-up.

This paper focuses on the first category of issues regarding the CCP default management auction process. These issues would include:

- The standardization of auction terminology, including defining different types of auction formats;
- The standardization of certain operational aspects of auction procedures, including in particular: (i) methods of communication, including form of communication; and (ii) formats for auction files, including auction portfolio and valuation files, by asset class.

Furthermore, the paper outlines certain best practices for the following components of a default auction: the process for determining whether an auction is the appropriate liquidation method and the position(s) to be auctioned; determining the closing or hedging strategy where appropriate, including subdivision of the positions; determining eligible and/or required

³ "Uniform CCP Terminology for Default Management Auctions" – January 2016:
https://www.cftc.gov/sites/default/files/idc/groups/public/@aboutcftc/documents/file/mrac062716_uniformccp.pdf

participants; distribution of the auction portfolio; and the issuance of auction terms including the process for submitting and awarding successful bids.

To this end, CCPs should have well-defined policies and procedures in place, which articulate the process for managing a default and which provide the CCP the required flexibility to exercise expert judgment based on the prevailing facts and circumstances. These policies and procedures also clarify to the participants of the CCP the possible responsibilities they may have, and as such, establish the framework of incentives for the rebalancing. These responsibilities may be defined in a CCP's rules. A CCP's default management policies and procedures outline the stages and features of the default management process, in particular, where interaction between the CCP and its participants is required. These include default declarations or termination notices, mode of contact for hedging trades, procedures for collecting bids and establishing transactions to complete the default.

As outlined by CPMI-IOSCO in their 2017, 2019, and 2020 papers, different markets and CCPs can and do adopt different auction structures that are best suited to a robust and suitable rebalancing. As such, a "one-size-fits-all" approach to the auction process is inappropriate and it is critical to recognize that differences exist, such as product types, market structures and characteristics, regulatory and legal environments in different jurisdictions, and operational requirements. It is also imperative that a CCP retains flexibility in its default auction approach to react to the facts and circumstances at the time of the event.

2. UNIFORM CCP TERMINOLOGY FOR DEFAULT MANAGEMENT AUCTIONS⁴

The goal of the Uniform CCP Terminology for Default Management Auctions⁵ is to establish common terminology and conventions across CCPs, so that the market participants in CCP default management (DM) auctions find it easier to understand the rules and conventions of each auction in which they take part, which will lead to more effective auctions. Establishing common terminology and conventions is intended to minimize errors by auction participants and improve communications between CCPs during any default management related cooperation. This section outlines a broad industry agreement on English Language Uniform Terminology, which should be employed by CCPs and its participants in both discussions on auctions and to the degree possible, in a CCP's descriptions of their particular default management rules or procedures (for instance in a default management handbook or guide). It would be helpful for clearing participants (especially staff that might get involved in an auction on short notice) to have access to a short auction guide using the common terminology of this paper. Such guidance could be used solely for summary purposes and would not supersede any existing CCP documentation.

In what follows, while the documents will refer to 'positions', this concept is meant to also cover the terms 'portfolio' and 'transactions', which are used loosely to denote the whole or part of the unbalanced trades of the defaulting member at the time of the default, or at the time of the auction(s). In cases where CCPs have entered into hedging or other risk reducing trades ahead of auctions, these are virtually always included into the auctions too. CCPs also hold non-cash collateral or cash in other currencies that may require liquidation or conversion. While the below is primarily written for the positions, similar approaches can be and is undertaken by some CCPs for collateral, or the collateral may be included in the same auctions. This is particularly the case if the collateral is the deliverable underlying to the derivatives which are being auctioned.

2.1. DEFINITIONS

2.1.1. BIDDING FORMATS

Auctions are either open or sealed bid.

In an open auction, the auctioneer shares information related to the bids provided by auction participants during the bidding process. A common example of an open auction is the ascending open-outcry auction, in which the auctioneer accepts increasingly higher bids from

⁴ CCPs should consider harmonizing CCP auction terminology. For example, the Default Risk Management Working Group (DRMWG) is a group of international CCP representatives that worked closely with the CFTC's Market Risk Advisory Committee (MRAC) to publish the Uniform CCP Terminology for Default Management Auctions defining: auction mechanisms and definitions; auction types; portfolios; bids and bid construction; pricing; awards; and, auction lifecycle. As of today, CCPs can incorporate the Uniform CCP Terminology for Default Management Auctions definitions into the design and construction of their automated auction portals or default management systems.

⁵ "Uniform CCP Terminology for Default Management Auctions" – January 2016:

https://www.cftc.gov/sites/default/files/idc/groups/public/@aboutcftc/documents/file/mrac062716_uniformccp.pdf

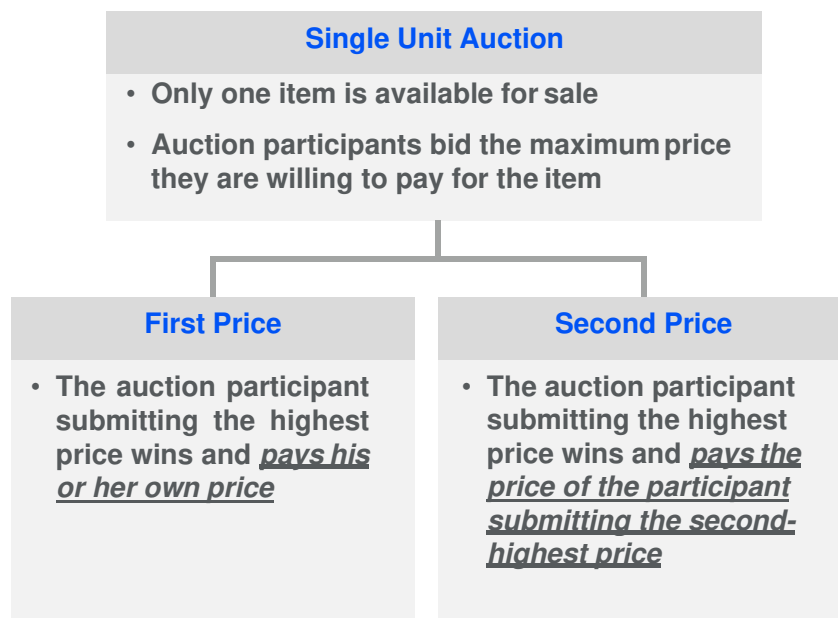
the auction participants until no auction participant is willing to submit a higher bid, at which point they sell the item to the highest bidder at a price equal to the highest bidder's bid.

In a sealed-bid auction, auction participants privately submit their bids to the auctioneer and the auctioneer keeps this information private, such that there is no sharing of bidding information amongst auction participants. Auction participants are only informed whether they have won or lost, and whether the auction failed to award 100% of the assets.

2.1.2.SINGLE UNIT AUCTIONS

In a single unit auction, only one item is available for sale and there is only one winner for the item. Auction participants bid a price at which they are willing to assume the item available for sale.^{6,7} The winner is the auction participant bidding the highest price. As shown in Figure 1, in the first price version of this type of auction, the winning auction participant pays his or her own price. In the second price version of this type of auction, the winning auction participant pays the price of the participant submitting the second-highest bid⁸.

FIGURE 1: FIRST AND SECOND PRICE VARIATIONS OF THE SINGLE UNIT SEALED BID AUCTION



⁶ For the avoidance of doubt, prices provided in a Default Management Auction can be either positive, indicating an amount paid by the auction participant to the CCP, or negative, indicating an amount paid by the CCP to the auction participant.

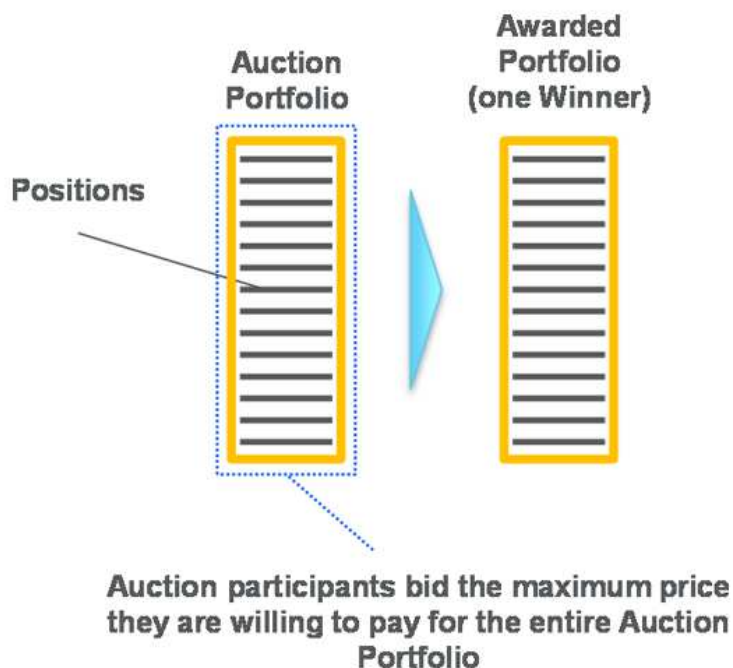
⁷ In cases in which there are multiple auction participants that provide the same winning price, CCPs will follow their previously communicated tie-breaking procedures in awarding the item available for sale. Examples of these include a random choice, or a time-priority assignment.

⁸ A second-price auction is often called a Vickrey Auction in the academic literature. While relatively uncommon, Vickrey auctions have the useful features that the optimal strategy for all bidders is to give their fair value as their price.

The application of a single unit auction to a portfolio of positions is straightforward. Each auction participant bids the maximum price they are willing to pay to take ownership of the entire portfolio, and the auctioneer transfers ownership of the entire portfolio to the winning auction participant, as illustrated in Figure 2.

Note that a CCP may conduct a series of Single Unit Auctions for a group of trades, either in series or parallel. An example of a possible simultaneous multiple use of Single Unit Auctions is for auctioning off interest rate derivatives by currency. In such an example, a CCP could convene a Single Unit Auction for each of the groups of positions which are denominated in the same currency.

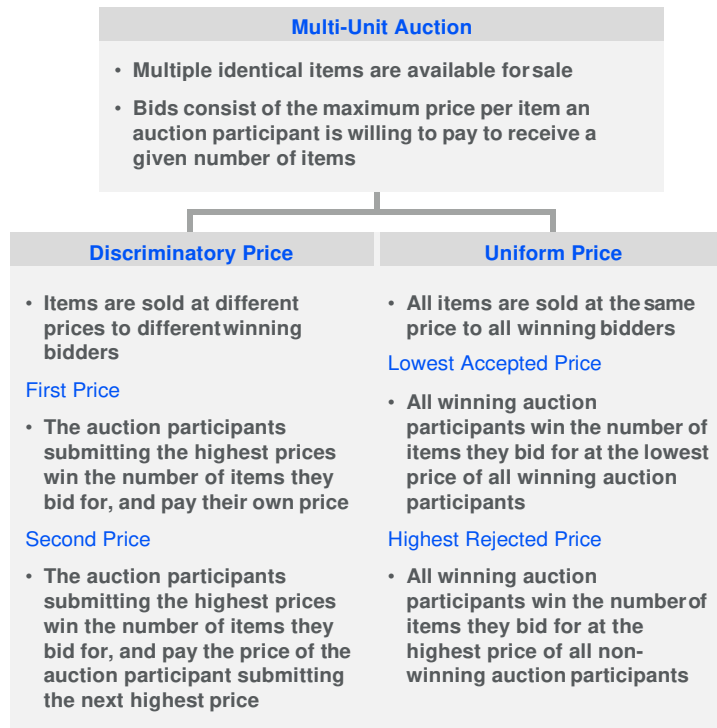
FIGURE 2: ILLUSTRATION OF SINGLE UNIT BIDDING FOR A PORTFOLIO OF POSITIONS



2.1.3. MULTI-UNIT AUCTIONS

In a multi-unit auction, multiple identical items are available for sale. Bids consist of a price per item an auction participant is willing to pay or receive for a given number of items. Two variants of the multi-unit auction are the discriminatory price multi-unit auction and the uniform price multi-unit auction, as illustrated in Figure 3.

FIGURE 3: DISCRIMINATORY AND UNIFORM PRICE VERSIONS OF THE MULTI UNIT SEALED BID AUCTION



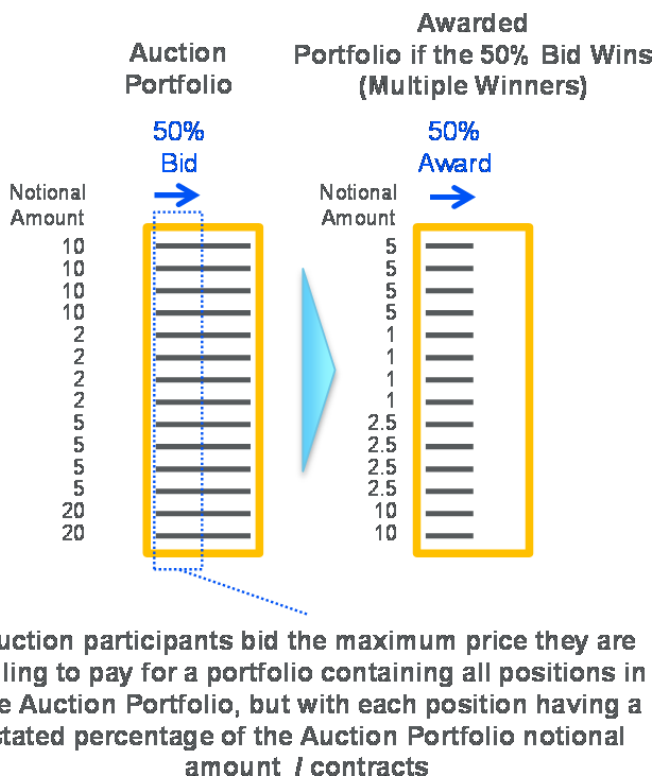
In the discriminatory price multi-unit auction, the auctioneer sells the identical items at different prices to different winning auction participants. The auctioneer accepts all highest prices until the order is filled and awards based on highest to lowest of winning bids. In a discriminatory first price multi-unit auction, the auction participants submitting the highest prices win the number of items they bid for, and pay their own bid prices. In a discriminatory second price multi-unit auction, the winning auction participants pay the price submitted by the next-highest bidder.

In the uniform price version of the multi-unit auction, the auctioneer sells the identical items at the same price to all winning auction participants. In a uniform lowest accepted price multi-unit auction, the auction participants submitting the highest prices win the number of items they bid for and pay the lowest price of all winning auction participants. In a uniform highest rejected price multi-unit auction, the winning auction participants pay the highest price of all non-winning auction participants.

The design choice of whether a Discriminatory or Uniform Price auction format is best depends on various complex factors, such as portfolio size, expected participation, likely aggressiveness of bids, along with other considerations.

Figure 4 illustrates the application of a multi-unit auction to a portfolio of positions. Each auction participant bids for a “slice” (in terms of the percentage of the notional amount or number of contracts) they wish to take ownership of. Winning auction participants receive the “slice” of the portfolio on which they bid.⁹

FIGURE 4: ILLUSTRATION OF MULTI-UNIT BIDDING FOR A PORTFOLIO OF POSITIONS



2.1.4. MULTI-ASSET AUCTIONS¹⁰

In a multi-asset auction, multiple non-identical items are available for sale, and auction participants bid for different combinations of the non-identical items. The auctioneer creates groups of the non-identical items, called “offered packages”. Auction participants may bid on combinations of the offered packages and the auctioneer may place constraints on the valid combinations of offered packages available for bidding. A bidding package is the combination of offered packages selected by an auction participant for one of its submitted bids.

Figure 5 illustrates the application of a multi-asset auction to a portfolio of positions. The auctioneer divides the auction portfolio into multiple separate groups of positions to form the offered packages A, B and C. The auctioneer sets the rules for which combinations of A, B and/or C represent valid bidding packages. For example, valid bidding packages may be

⁹ In cases in which there are multiple auction participants that provide the same winning price, CCPs will follow their, previously communicated, tie breaking procedures in awarding the slice(s) of the portfolio.

¹⁰ In the academic literature, these auctions are referred to as multi-good auctions.

defined as A only, B only, C only, and A, B and C jointly. Each auction participant bids the maximum price they are willing to pay to take ownership of a given, valid bidding package. The auctioneer establishes rules for deciding which auction participants receive which offered packages at what price, based on all received bids across different combinations of bidding package.

FIGURE 5: ILLUSTRATION OF A MULTI-ASSET AUCTION FOR A PORTFOLIO OF POSITIONS



Bids are accepted on valid combinations of Offered Package A, B and/or C

One example of the use of multi-asset auctions by the CCPs is to provide auction participants the ability to bid on an auction portfolio but exclude specific line items that represent undesired or prohibited instruments. In this case, every line item is effectively an offered package, and the participant creates a custom bidding package by submitting a bid for the original offered package minus any line items identified for exclusion. CCPs may place limitations on exclusions (i.e., all derivatives related to an underlying, or a particular product type) in order to prevent “cherry picking.” The auctioneer can either establish an algorithm in advance, or apply judgement appropriate to the particular case, in selecting which auction participants receive which offered packages (line items) and at what price, based on the bids received containing different line-item exclusions. Positions in the offered package excluded from the primary auction could be sold in a separate auction or liquidated by other means such as the central orderbook of the exchange. While such procedures can improve the overall result by handling idiosyncratic products separately to a more common auction, there is a risk that non-simultaneous rebalancing of correlated and / or cross-margined positions could lead to losses.

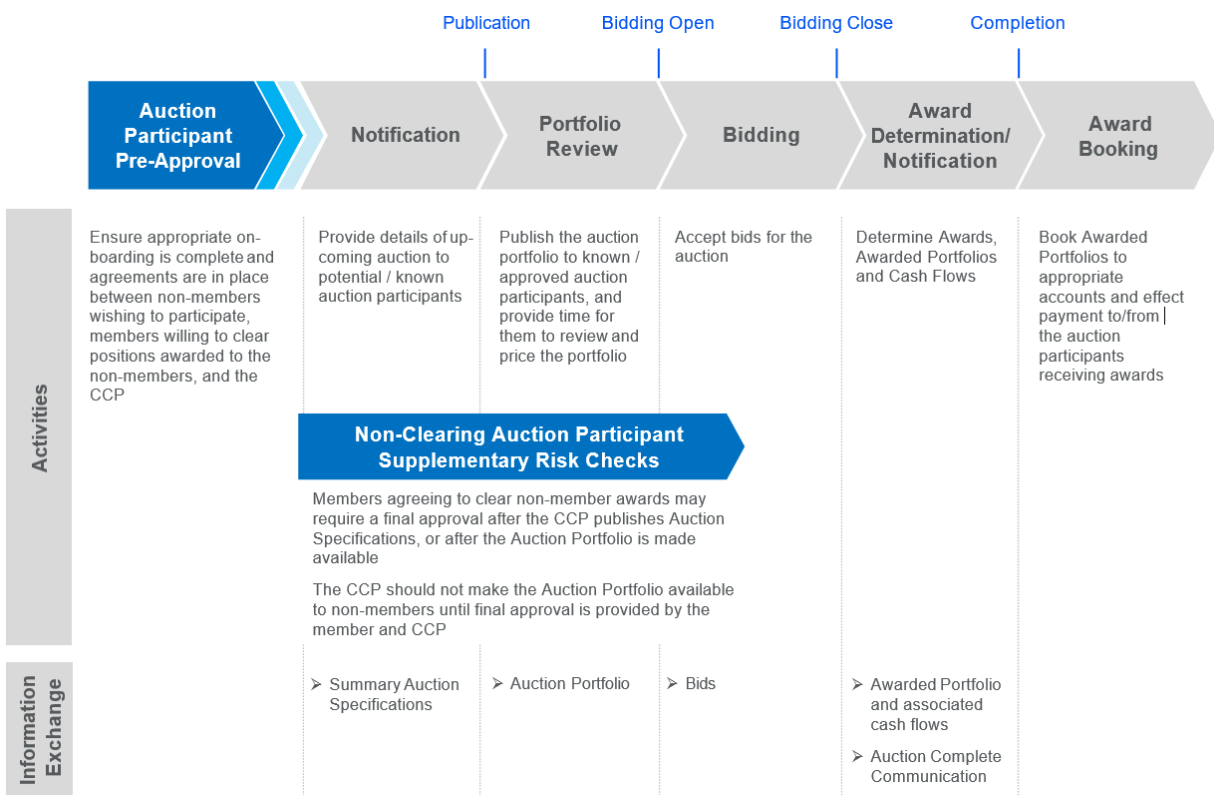
Another example of the use of multi-asset auctions by the CCPs is to provide auction participants the ability to bid on either the positions cleared by the defaulting clearing member, the collateral posted by the defaulted clearing member, or both the positions cleared and the collateral posted by the clearing member. In this case the offered packages are A) cleared

positions and B) collateral, and the valid bidding packages are A, B, or A and B. Based on this combinatorial bidding, the auctioneer establishes the algorithm for selecting which auction participant receives offered package A and at what price, and which auction participant receives offered package B and at what price. This may be particularly useful in cases where collateral is economically linked to positions (cash equities as collateral for options' portfolios on the same, for instance).

2.1.5. AUCTION LIFECYCLE

All auctions run by CCPs incorporate a similar sequence of activities and information exchange. Figure 6 illustrates a generalized auction lifecycle, which describes all auctions.

FIGURE 6: ILLUSTRATION OF COMMON ELEMENTS IN THE LIFECYCLE OF A CCP DEFAULT MANAGEMENT AUCTION



The CCP must first establish which clearing members, their customers, if any, and non-clearing members¹¹, if any, it will invite to participate in a given auction. CCP rules typically provide for auctions in which clearing members are required to participate (Mandatory Auctions), and/or auctions in which clearing members may optionally participate (Voluntary Auctions). Some CCP rules allow for clearing members to bid on behalf of their customers (Indirect Participating Customers), for the participation of customers directly in the auction

¹¹ A Non-Clearing Member is typically a member of an Exchange that is known to a CCP, but clears their own trades via a clearing member.

(Direct Participating Customers), and/or for the participation of CCP members that the CCP has not authorized to clear with them¹².

If non-clearing members or non-member customers wish to be auction participants (Non-Clearing Auction Participants), they typically must first establish a clearing relationship with one or more clearing members and obtain pre-approval from those clearing members, such that the clearing members commit to clear positions awarded to the Non-Clearing Auction Participants. Figure 6 shows this step as “Non-Member Auction Participant Pre-Approval”, which may take place as part of the normal course of business, ahead of any potential default. As part of these activities, the clearing member on-boards the Non-Clearing Auction Participant such that all required systems integrations, legal agreements, training activities, etc. are complete.

As an additional step, some CCPs may disclose high-level characteristics of the auction portfolio to the clearing members and customers and solicit their interest to participate in the auction. Such disclosures, as with any information relating to auctions, must be carefully structured, transmitted and handled to ensure it does not enable or create anti-competitiveness, unfairness or other compliance and regulatory issues. This applies naturally to the CCP, but also to direct and indirect participants receiving the information.

Once the CCP has identified the potential auction participants, it announces details of the upcoming auction to this group so that they can prepare. Figure 6 shows this step as “Notification”. During the Notification period, the CCP provides all potential auction participants with a summary auction specification and any other required information related to the upcoming auction. The summary auction specification includes the date and time at which the CCP will distribute the auction portfolio to auction participants, the date and time at which the CCP begins accepting bids, the date and time at which the CCP stops accepting bids, and the estimated date and time at which the CCP will have communicated all awards and related cash flows, and distributed an auction complete communication to all auction participants.

There is a balance to be struck in the amount of time permitted for pricing the portfolio; if this is too short, then bidders may be limited or unable to return prices and too long a period increases the risk premium and the possible change in price that can be a loss or profit for the CCP or bidders on the portfolio. The complexity and tempo of particular markets, or the events surrounding a particular default, the communication methods employed, and the auction format affect what are suitable time frames. CCPs should set the amount of time permitted to price a portfolio taking into consideration the capabilities of their participants, review these timings regularly and test them during default drills. Participants should ensure that they have robust procedures to fulfill their obligations.

During the Notification and Portfolio Review periods, clearing members may require time to perform supplementary risk checks before approving Non-Clearing Auction Participants for participation in the given auction. The supplementary risk checks may require information

¹² This last example could be the case of linked CCPs

contained in the Summary Auction Specifications, in which case the clearing member may be able to complete its supplementary risk checks during the Notification period. In instances where supplementary risk checks require knowledge of the specific auction portfolio, the clearing member may perform supplementary risk checks during the Portfolio Review period or Bidding Window. It is important to Non-Clearing Auction Participants that clearing members perform supplementary risk checks as quickly as possible, since the time it takes the relevant clearing member to perform these checks can reduce the effective duration of the Portfolio Review period or Bidding Window for non-clearing members.

After the auction is complete, the CCP books any awarded positions and effects any payments to/from auction participants receiving awards. Figure 6 shows these activities occur during the Award Booking period.

2.2. STANDARD TERMINOLOGY AND CONVENTIONS

2.2.1. ACADEMIC REFERENCES TO AUCTION MECHANISMS

Table 1 defines the commonly used terms for describing auction mechanisms. These common terms are primarily to facilitate the definition of the standard CCP auction types in Section 2.2.2. Given the various alternative terminology in academic literature, it is beneficial to define a standard terminology used by CCPs during discussions with their stakeholders.

TABLE 1: STANDARD TERMINOLOGY FOR DESCRIBING AUCTION MECHANISMS

Term	Description / Comments
2.2.1.1 Sealed Bid	<ul style="list-style-type: none"> Any auction mechanism where auction participants share their bids with only the auctioneer and the auctioneer makes no information related to its received bids available to auction participants.
2.2.1.2 Single Unit	<p><u>General definition</u></p> <ul style="list-style-type: none"> Any auction mechanism where only one item is available for sale. <p><u>Definition in the context of a default management auction</u></p> <ul style="list-style-type: none"> Any auction mechanism in which the auction participants bid for the entire portfolio being auctioned.
2.2.1.3 Multi Unit	<p><u>General definition</u></p> <ul style="list-style-type: none"> Any auction mechanism where multiple identical items are available for sale. <p><u>Definition in the context of a default management auction</u></p> <ul style="list-style-type: none"> Any auction mechanism in which auction participants bid for a percentage of the size (e.g., notional amount or number of contracts) or portfolio units of all positions in the portfolio being auctioned.

<p>2.2.1.4 Multi Asset</p>	<p><u>General definition</u></p> <ul style="list-style-type: none"> Any auction mechanism where multiple non-identical items are available for sale and auction participants bid for different combinations of the non-identical items. <p><u>Definition in the context of a default management auction</u></p> <ul style="list-style-type: none"> Any auction mechanism in which the CCP divides the portfolio being auctioned into multiple groups of positions, and auction participants are allowed to submit bids for different combinations of the defined groups, at the discretion of the auction participants, within certain combinatorial bidding rules defined by the CCP.
<p>2.2.1.5 First Price</p>	<ul style="list-style-type: none"> A method for determining the price paid by a winning auction participant, in which that winning auction participant pays its own bid price.
<p>2.2.1.6 Second Price</p>	<ul style="list-style-type: none"> A method for determining the price paid by a winning auction participant, in which that winning auction participant pays the next lower bid price to its own bid price.
<p>2.2.1.7 Discriminatory Price</p>	<ul style="list-style-type: none"> A Multi-Unit auction in which the price paid by the various winning auction participants can be different for different auction winners. Common Discriminatory Price auctions use the First Price or Second Price method of determining the price paid by winning auction participants.
<p>2.2.1.8 Uniform Price</p>	<ul style="list-style-type: none"> A Multi-Unit auction in which the same price is paid by all winning auction participants. Common Uniform Price auctions use the Lowest Accepted Price or Highest Rejected Price method for determining the price paid by winning auction participants.
<p>2.2.1.9 Lowest Accepted Price</p>	<ul style="list-style-type: none"> A method for determining the price paid by all winning auction participants in a Uniform Price auction, in which the lowest price bid by a winning auction participant is used as the price for all winning auction participants.
<p>2.2.1.10 Highest Rejected Price</p>	<ul style="list-style-type: none"> A method for determining the price paid by all winning auction participants in a Uniform Price auction, in which the highest price bid by a non-winning auction participant is used as the price for all winning auction participants.

2.2.2.CCP AUCTION TYPES

All default management auction mechanism presented by the CCPs fall into one of four types of auctions defined in Table 2 and illustrated in Figure 7.

TABLE 2: STANDARD CCP AUCTION TYPES

Term	Description / Comments
2.2.2.1 Single Unit Pay Your Price	<ul style="list-style-type: none"> • Single Unit, First Price, Sealed Bid auction, also commonly referred to as a Winner Takes All auction. See <i>Fig. 8</i>.
2.2.2.2 Multi-Unit Pay Your Price	<ul style="list-style-type: none"> • Multi-Unit, Discriminatory First Price, Sealed Bid auction. See <i>Fig 9</i>.
2.2.2.3 Modified Dutch	<ul style="list-style-type: none"> • Multi-Unit, Uniform Lowest Accepted Price, Sealed Bid auction. See <i>Fig 10</i>.
2.2.2.4 Selective Bidding	<ul style="list-style-type: none"> • Multi-Asset, First Price, Sealed Bid auction. • This type of auction has several variants within the CCPs. <ul style="list-style-type: none"> – Different CCPs have different strategies for splitting the portfolio being auctioned into different offered packages, and different rules for the valid combinations of offered packages on which CCPs may bid. – Different CCPs also have different methodologies for determining which auction participants are the winners of each offered package, given the bids received for different combinations of offered package. • All variants share the feature that, whichever auction participant is selected as the winner of a given combination of offered packages on which that auction participant bids, the price that auction participant bid for that combination of offered packages is paid. • The Selective Bidding auctions used by the CCPs include the following common variants: <ul style="list-style-type: none"> – The CCP provides the auction participants with a small number of mutually exclusive offered packages. An auction participant may bid on any individual offered package or on all offered packages together. Winning auction participants receive the combination of offered packages they bid on at the price they bid for that combination of offered packages. – The CCP provides the auction participants with the portfolio it wishes to sell. An auction participant bids on the entire portfolio excluding any number of instruments it indicates with its bid. Winning auction participants receive the portfolio without their excluded positions, for the price they bid for the portfolio without these excluded positions.

FIGURE 7: FOUR STANDARD CCP AUCTION TYPES (ANY AUCTION TYPE DISCUSSED FALL INTO ONE OF THESE CATEGORIES)

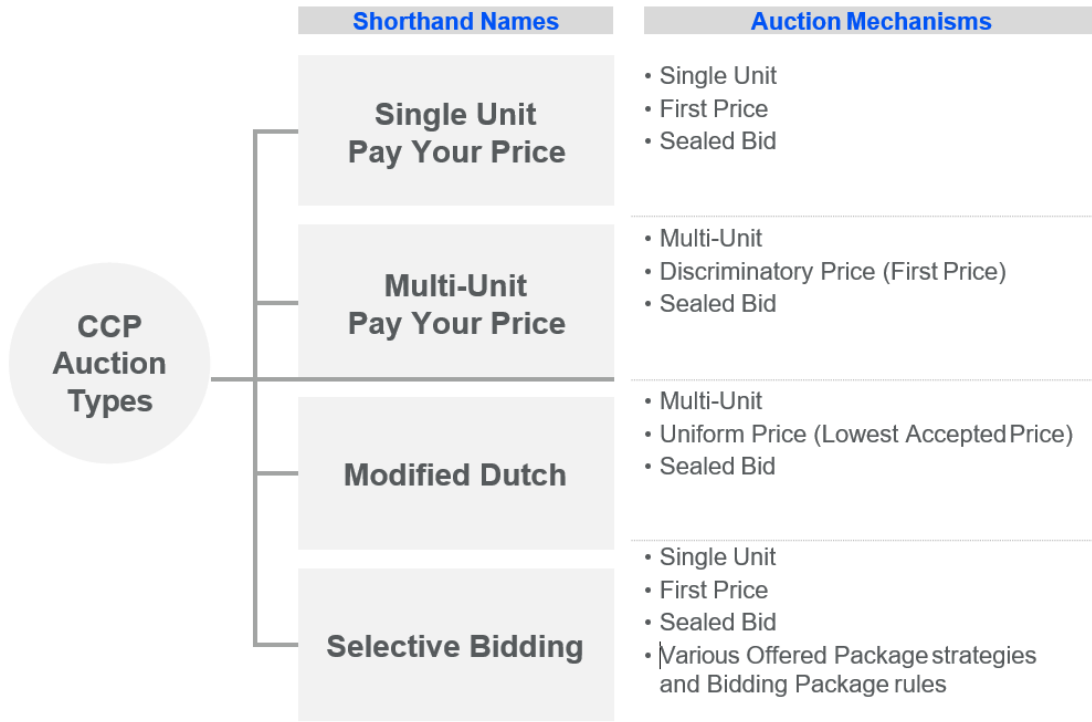


FIGURE 8: EXAMPLE OF A SINGLE UNIT PAY YOUR PRICE AUCTION

BID			AWARDS			
Participant	Price per 100%	CCP Pay / Receive	Participant Award	Cumulative Awards	Invoice Amount	CCP Pay/Receive
A	3,000,000	CCP Receives	100.0%	100.0%	3,000,000	CCP Receives
B	2,000,000	CCP Receives				
C	(1,000,000)	CCP Pays				
D	(1,250,000)	CCP Pays				
E	(2,000,000)	CCP Pays				
F	(2,500,000)	CCP Pays				
G	(3,000,000)	CCP Pays				
H	(5,000,000)	CCP Pays				
I	(50,000,000)	CCP Pays				
			Total		3,000,000	CCP Receives

FIGURE 9: EXAMPLE OF A MULTI-UNIT PAY YOUR PRICE AUCTION

BID					AWARDS			
Participant	Size	Price per given Size	Price per 100%	CCP Pay / Receive	Participant Award	Cumulative Awards	Invoice Amount	CCP Pay/Receive
A	15.0%	450,000	3,000,000	CCP Receives	15.0%	15.0%	450,000	CCP Receives
B	15.0%	300,000	2,000,000	CCP Receives	15.0%	30.0%	300,000	CCP Receives
C	15.0%	(150,000)	(1,000,000)	CCP Pays	15.0%	45.0%	(150,000)	CCP Pays
D	15.0%	(187,500)	(1,250,000)	CCP Pays	15.0%	60.0%	(187,500)	CCP Pays
E	15.0%	(300,000)	(2,000,000)	CCP Pays	15.0%	75.0%	(300,000)	CCP Pays
F	15.0%	(375,000)	(2,500,000)	CCP Pays	15.0%	90.0%	(375,000)	CCP Pays
G	30.0%	(900,000)	(3,000,000)	CCP Pays	10.0%	100.0%	(300,000)	CCP Pays
H	15.0%	(750,000)	(5,000,000)	CCP Pays				
I	15.0%	(7,500,000)	(50,000,000)	CCP Pays				
Total							(562,500)	CCP Pays

FIGURE 10: EXAMPLE OF A MODIFIED DUTCH AUCTION

BID					AWARDS				
Participant	Size	Price per given Size	Price per 100%	CCP Pay / Receive	Participant Award	Cumulative Awards	Invoice Amount	CCP Pay/Receive	
A	15.0%	450,000	3,000,000	CCP Receives	15.0%	15.0%	(450,000)	CCP Pays	
B	15.0%	300,000	2,000,000	CCP Receives	15.0%	30.0%	(450,000)	CCP Pays	
C	15.0%	(150,000)	(1,000,000)	CCP Pays	15.0%	45.0%	(450,000)	CCP Pays	
D	15.0%	(187,500)	(1,250,000)	CCP Pays	15.0%	60.0%	(450,000)	CCP Pays	
E	15.0%	(300,000)	(2,000,000)	CCP Pays	15.0%	75.0%	(450,000)	CCP Pays	
F	15.0%	(375,000)	(2,500,000)	CCP Pays	15.0%	90.0%	(450,000)	CCP Pays	
G	30.0%	(900,000)	(3,000,000)	CCP Pays	10.0%	100.0%	(300,000)	CCP Pays	
H	15.0%	(750,000)	(5,000,000)	CCP Pays					
I	15.0%	(7,500,000)	(50,000,000)	CCP Pays					
Clearing Price: (3,000,000)							Total	(3,000,000)	CCP Pays

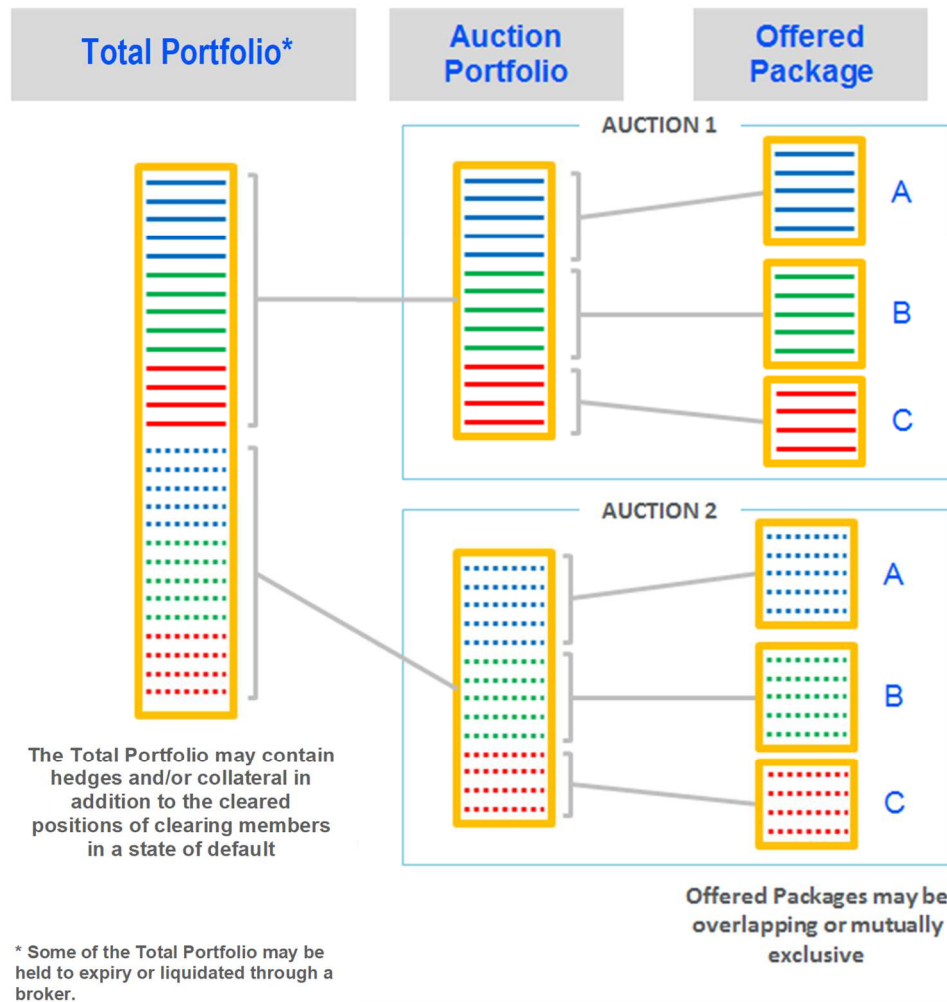
2.2.3. REFERENCES TO GROUPS OF POSITIONS

Table 3 defines the standard terminology to reference groups of positions related to default management auctions. Figure 11 provides an illustration of this terminology.

TABLE 3: STANDARD TERMINOLOGY TO DESCRIBE GROUPS OF AUCTION-RELATED POSITIONS

Term	Description / Comments
<p>2.2.3.1 Total Portfolio</p>	<ul style="list-style-type: none"> • The portfolio of one or more clearing members in a state of default, which becomes the responsibility of the CCP to liquidate and/or port in order to return to a balanced book. • The Total Portfolio contains primarily cleared positions at the time of default, but can also contain: <ul style="list-style-type: none"> – Hedges (risk reducing transactions). – Collateral posted by one or more defaulting clearing member.
<p>2.2.3.2 Auction Portfolio</p>	<ul style="list-style-type: none"> • A sub-set of (or all) positions in the Total Portfolio that the CCP wishes to liquidate in a given auction. The CCP should provide clear identifiers so that clearing members are able to easily identify the positions for which they are bidding. • In some auctions, the CCP obscures the directionality of the Total Portfolio by adding a mirror Auction Portfolio, which is identical to one of the real Auction Portfolios but has the directionality of all positions reversed. • The CCP should also make clear the convention they are using to denote bought and sold positions, for instance whether a negative amount denotes a short position. CCPs and participants should be particularly attentive if the auction description differs from the traditional convention employed in CCP reports and vendor systems for the market in question.
<p>2.2.3.3 Offered Package</p>	<ul style="list-style-type: none"> • Offered Packages define the sub-sets of the Auction Portfolio that auction participants can choose to bid for, in combination and/or individually, as part of a Selective Bidding auction. • Offered packages do not have to be mutually exclusive.

FIGURE 11: RELATIONSHIP BETWEEN A TOTAL PORTFOLIO, AUCTION PORTFOLIO AND OFFERED PACKAGES



2.2.4. BIDS AND BID CONSTRUCTION

Table 4 defines the standard terminology related to the components of an auction participant's bid.

TABLE 4: STANDARD TERMINOLOGY AND CONVENTIONS FOR AUCTION BIDDING

Term	Description / Comments
2.2.4.1 Bidding Package	<ul style="list-style-type: none"> The Bidding Package associated with an Auction Participant's bid identifies the specific sub-set of Auction Portfolio positions on which it is bidding. The Auction Participant specifies the Bidding Package in terms of a valid combination of the Offered Packages provided by the CCP, as per the clearinghouse's instructions for Offered Package

	<p>selection.</p> <ul style="list-style-type: none"> • The Auction Participant's bid needs only to identify a Bidding Package for Selective Bidding auctions, for the other three standard CCP auction types (see Figure 7) the Bidding Package is implicitly the entire Auction Portfolio.
<p>2.2.4.2 Bid Size</p>	<ul style="list-style-type: none"> • The Bid Size associated with an Auction Participant's bid identifies the portion of the Auction Portfolio notional amounts / number of contracts on which it is bidding, and it is subject to minimum bid size (see 3.5.3) and bid size increment (see 3.5.2). • The Auction Participant specifies Size in terms of a single percentage, which applies to the notional amounts / number of contracts of all Auction Portfolio positions on which the Auction Participant is bidding, or in terms of a number of portfolio units.
<p>2.2.4.3 Price or Level</p>	<p><u>Price</u></p> <ul style="list-style-type: none"> • The Price associated with an Auction Participant's bid specifies the maximum CCP invoice amount, in the Auction Currency, that the Auction Participant would accept for receiving the sub-set of Auction Portfolio positions on which it is bidding, at a Bid Size of 100% or at a Bid Size which satisfies minimum bid size and bid size increment criteria. • If a CCP applies two-way bidding, Auction Participants are required to provide both a Price to buy and a Price to sell, in the Auction Currency for the specified sub-set of Auction Portfolio. • The invoice amount is the payment to/from the Auction Participant associated with a winning bid. • A positive invoice amount (and therefore a positive Price) represents payment from the Auction Participant to the CCP. • A negative invoice amount (and therefore a negative Price) represents payment from the CCP to the Auction Participant. • The invoice amount is in addition to any other "business-as-usual" payments (positive and/or negative) between the CCP and Auction Participant related to the transfer of positions from the Total Portfolio to the Auction Participant's portfolio, such as end-of-day mark-to-market payments and initial margin payments. • In order for Auction Participants to take into consideration, when pricing their bids, any business-as-usual payments associated with a winning bid, as part of an auction's specification the CCP outlines the settlement method for resulting awards and provides a summary of the types of business-as-usual payment that will be associated with taking on the awarded positions. <p><u>Level</u></p> <p>If a CCP is requesting bids for positions in individual instruments (i.e., offered packages are for individual positions rather than a sub-portfolio of positions), then the CCP may request Auction Participants to provide the worst execution level they are willing to accept for receiving their stated Size in the given position.</p>

	<ul style="list-style-type: none"> • The CCP computes the invoice amount associated with an auction award following market convention and/or the CCP’s stated methodology for computing profit or loss (P/L) from the execution level, size and directionality of the awarded position. • The CCP defines the units in which an Auction Participant must state the execution level associated with its bid, typically following market conventions for the given instrument (e.g., Credit Default Swap spread level in bps, etc.).
<p>2.2.4.4 Settlement Method</p>	<ul style="list-style-type: none"> • The Settlement Method specified by the CCP in relation to a given auction describes any economic or operational details related to its transfer of awarded positions from the Auction Portfolio to winning Auction Participants’ portfolios, that may be relevant to Auction Participants in the formulation of their bids. • One element of the Settlement Method that is important for certain asset classes is whether the CCP transfers the positions at zero or at last mark. <ul style="list-style-type: none"> – If the CCP transfers the positions at the last mark, the CCP computes the business-as-usual mark-to-market payments associated with each position in the transferred portfolio based on the difference between the previous day’s marks and the marks at the next settlement cycle (i.e. end-of-day or intraday) following the auction. – If the CCP transfers the positions at zero, the CCP computes the business-as-usual mark-to-market payments associated with each position in the transferred portfolio based on the difference between zero and the marks of the next settlement (i.e. end-of-day or intraday) cycle following the auction. • Another important element of the Settlement Method is the operational process for payment of the invoice amount associated with an auction award. <ul style="list-style-type: none"> – One example is a “one-off” settlement made by Delivery Versus Payment (DVP), most commonly used in the transfer of awarded collateral positions in which the collateral is transferred when specific payment for the invoice amount is received. – Another example is for the CCP to combine the payment for the invoice amount associated with the auction award with all other business-as-usual payments between the CCP and a winning Auction Participant, such that the winning Auction Participant and the CCP exchange one net cash flow through their established business-as-usual settlement cycle. • If the auction winner is not a clearing member, the aim is to transfer the portfolio with the least amount of risk. How this is to be done will depend on the clearing model but should be carefully and explicitly documented by the CCP, and conducted by the clearing member and client.
<p>2.2.4.5 Capital Considerations</p>	<ul style="list-style-type: none"> • The Capital Considerations outlined by the CCP in relation to a given auction serve as a reminder to Auction Participants of their obligations to the CCP should they receive an auction award.

	<ul style="list-style-type: none"> • Typical Capital Considerations for winning Auction Participants include: <ul style="list-style-type: none"> – Impact on risk requirements including initial margin, variation margin and default fund requirements. – The business-as-usual timing for meeting increased risk requirements. – Any implications for Auction Participant not meeting their obligations related to receiving auction awards.
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To reduce the chances of erroneous submissions and/or erroneous interpretation of submissions, CCPs aim to collect bids in a format that follows standard market conventions. One aspect of this standardization is explicitly covered in this paper. A secondary consideration is whether new or existing auction templates should be harmonized across CCPs for suitable asset classes or market segments. A substantial trade-off in such harmonization is the move away from existing and tested communication methods between CCPs and their participants¹³. In any case, CCPs with similar product types and markets should strive to follow the same bidding formats and conventions. Generally, CCP should collect bids in terms of a Price representative of the selected Bidding Package along with the Size desired. The Auction Participant should not adjust its submitted Price for its desired Size. For auctions in which bidders are required to provide Levels or provide a Price per given unit Size (rather than the standard 100% of the selected Bidding Package), the CCP may compute the equivalent Price (per 100% size) and provide it to the Auction Participant for reference.

Some CCPs might maintain auction formats in the framework of which they require Auction Participants to provide a two-way quote for a Bidding Package. In such case, the required quote must consist of a Price to buy and a Price to sell the Bidding Package, whereas the CCP reserves the right to define a maximum spread allowable between these two Prices.

In the definitions, the Price includes a sign that indicates whether associated Invoice Amounts (see 2.2.6.3) will be positive or negative from the bidder’s perspective. Specifically, if the Price submitted for a Bidding Package is positive, the associated Invoice Amount will be positive and the Auction Participant will be required to pay the CCP. Conversely, if the Price submitted is negative, the associated Invoice Amount will be negative and the CCP will be required to pay the Auction Participant.

Payment of the Invoice Amount associated with a winning bid at a given Price is in addition to any other business-as-usual payments between the CCP and Auction Participant, including those related to the transfer of the defaulter’s positions to the Auction Participant’s portfolio, such as end-of-day mark-to-market payments and initial margin payments. Bidders therefore need to remain cognizant of the settlement method used to transfer the awarded positions. Because of the importance of settlement method in pricing an auction submission, this paper recommends that CCPs specify the settlement method at the time they request submissions. An Auction Participant may adjust the Price of its submission below market

¹³ Auction file or communication template could be standardized following industry initiatives like ISDA’s [Common Domain Model](#) that aims to generate synergies by standardizing data and process models across the whole industry.

value if it requires compensation related to incurred costs associated with a potential auction award, or adjust the Price of its bid above market value if it wishes to pay a premium to increase the probability of receiving the desired portfolio.

Table 5 provides stylized examples of how an Auction Participant may construct its bid for various positions and settlement methods. This table is not intended to be comprehensive and it does not include all bid construction scenarios, but rather illustrates the concept.

TABLE 5: STYLIZED EXAMPLE OF BID CONSTRUCTION

Term	Description /Comments
<p>Auction Type:</p> <ul style="list-style-type: none"> • Single Unit Pay Your Price <p>Settlement Method:</p> <ul style="list-style-type: none"> • Transfer at last mark • Invoice Amount included in end-of-day net payment cycle 	<p>Assumptions:</p> <ul style="list-style-type: none"> • <i>Auction Portfolio:</i> Net position of 20 long Futures contracts with a multiplier of 100. • Previous day settlement price = 2040. • Price as of the time of the auction = 2038. • End-of-day settlement price = 2039. <p>Bid Construction:</p> <ul style="list-style-type: none"> • The Auction Participant is willing to take on the position at market value (without charging a premium for costs associated with taking on the portfolio). • The price at the time of the auction is 2038, so the Auction Participant submits a Price of -\$4,000, representing an invoice amount payable from the CCP to the Auction Participant, should the Auction Participant win the auction: The Auction Participant calculates the bid Price as: $(2038-2040) * 100 * 20$. <p>Settlement:</p> <ul style="list-style-type: none"> • The Auction Participant wins the auction and is awarded the 20 long Futures contracts for an invoice amount of -\$4,000 (CCP pays Auction Participant). • The invoice amount of -\$4,000 is included in the end-of-day net payment cycle. • Because the CCP transferred the position at last mark, the CCP's business-as-usual processing generates a mark-to-market payment associated with the awarded position of -\$2,000 (Auction Participant pays CCP, calculated as: $(2039-2040) * 100 * 20$). • The net of the invoice amount and first mark-to-market payment is -\$2,000 (CCP Pays Auction Participant, calculated as $-\\$4,000 + \\$2,000$). • Should the Auction Participant have held the same position on the prior day and not benefitted from the invoice amount, its mark-to-market payment would not have been offset and the Auction Participant would have paid \$2,000 to the CCP as part of the end-

	<p>of-day net payment cycle.</p> <ul style="list-style-type: none"> As part of its business-as-usual processes, the CCP re-calculates the risk requirements for the winning Auction Participant's cleared portfolio, which now includes the transferred Futures contracts, and includes any required payments to/from the CCP for risk margining or default fund purposes in the relevant business-as-usual payment cycle.
<p>Auction Type:</p> <ul style="list-style-type: none"> Single Unit Pay Your Price <p>Settlement Method:</p> <ul style="list-style-type: none"> Transfer at zero Invoice Amount included in end-of-day net payment cycle 	<p>Assumptions</p> <ul style="list-style-type: none"> <i>Auction Portfolio:</i> Net position short 15 call options with a multiplier of 100. Previous day settlement price = 2.35. Price as of the time of the auction = 2.50. End-of-day settlement price = 2.60. <p>Bid Construction:</p> <ul style="list-style-type: none"> The Auction Participant requires a \$75 premium for taking on the portfolio. The price at the time of the auction is 2.50, so the Auction Participant submits a Price of -\$3,825 (CCP Pays Auction Participant, calculated as: $(2.50 * 100 * -15) - 75$). <p>Settlement:</p> <ul style="list-style-type: none"> The Auction Participant wins the auction and is awarded the 15 short call options for an invoice amount of -\$3,825 (CCP pays Auction Participant). The invoice amount of -\$3,825 is included in the end-of-day net payment cycle. The CCP's business-as-usual processing computes the daily change in Net Liquidating Value (NLV) for the positions transferred to the winning Auction Participant. Because the positions were transferred at zero, the NLV is \$3,900 (Auction Participant pays CCP, calculated as: $(2.60 - 0) * 15 * 100$). For the winning Auction Participant, the net of the invoice amount and its "first" NLV payment related to the transferred positions is \$75 (Auction Participant pays CCP, calculated as $-\\$3,825 + \\$3,900$). As part of its business-as-usual processes, the CCP re-calculates the risk requirements for the winning Auction Participant's cleared portfolio, which now includes the transferred Options contracts, and includes any required payments to/from the CCP for risk margining or default fund purposes in the relevant business-as-usual payment cycle.

2.2.5.CONSTRAINTS AND REQUIREMENTS

Table 6 defines standard terminology for the constraints and requirements placed on auction participant bids by CCPs.

TABLE 6: STANDARD TERMINOLOGY FOR AUCTION CONSTRAINTS AND REQUIREMENTS

Term	Description / Comments
2.2.5.1 Auction Currency	<ul style="list-style-type: none"> • Currency in which auction participants must specify the Invoice Amount.
2.2.5.2 Bid Size Increment	<ul style="list-style-type: none"> • Bid Size must be specified in terms of integer multiples of the Bid Size Increment. • Sets a lower limit on the material difference between any two auction participant's bid Sizes.
2.2.5.3 Minimum Bid Size	<ul style="list-style-type: none"> • If an auction participant provides a bid, the Bid Size must be greater than or equal to the Minimum Bid Size to be considered a valid bid. • The Minimum Bid Size must be an integer multiple of the Bid Size Increment. • Sets a lower-limit on the materiality of any bid received from an auction participant.
2.2.5.4 Minimum Bid Requirement	<ul style="list-style-type: none"> • The smallest cumulative Bid Size, across all valid bids provided by a given auction participant, that is required of that auction participant by the CCP. • Auction participants not meeting their Minimum Bid Requirement may be subject to penalties by the CCP.
2.2.5.5 Price Increment	<ul style="list-style-type: none"> • Price must be specified in terms of integer multiples of the Price Increment.

<p>2.2.5.6 Reserve Price</p>	<ul style="list-style-type: none"> • The lowest price (smallest payment to the CCP per unit / largest payment to the auction participant per unit) that the CCP considers a valid bid. • Established an upper-limit on the amount CCP will pay winning auction participants per unit of the Auction Portfolio. • Reserve Prices may be private (i.e., known only to the CCP), or provided to all auction participants as part of the CCP’s auction specification. • When a CCP sets a private Reserve Price ahead of an auction, or sets no Reserve Price ahead of an auction, the CCP may, subject to its rules and procedures, set or revise its Reserve Price based on received bids. This enables a CCP to award less than 100% of its Auction Portfolio if it observes a significant decrease in price in the last several potentially winning bids, and believes it may achieve a better price for that residual component in a separate auction or using some other liquidation mechanism. • The CCP should state its public Reserve Price, if applicable, or state “Private” or “None”. If the CCP has the ability under its rules and procedures to set or revise a private Reserve Price after receiving bids, it should also state, “Reserve Price subject to revision based on received bids.”
<p>2.2.5.7 Maximum Price</p>	<ul style="list-style-type: none"> • The highest price (largest payment to the CCP per unit / smallest payment to the auction participant per unit) that the CCP considers a valid bid. • Provides the CCP with a mechanism with which to protect auction participants from grossly over-paying (or being grossly under-paid) for a given Auction Award – as might result from erroneous bids. • The CCP may, subject to its rules and procedures, set no Maximum Price, set a private Maximum Price, publish a Maximum Price prior to the auction, or revise or set a Maximum Price after receiving all bids, such that the CCP may eliminate obviously erroneous bids.

2.2.6. AWARDS

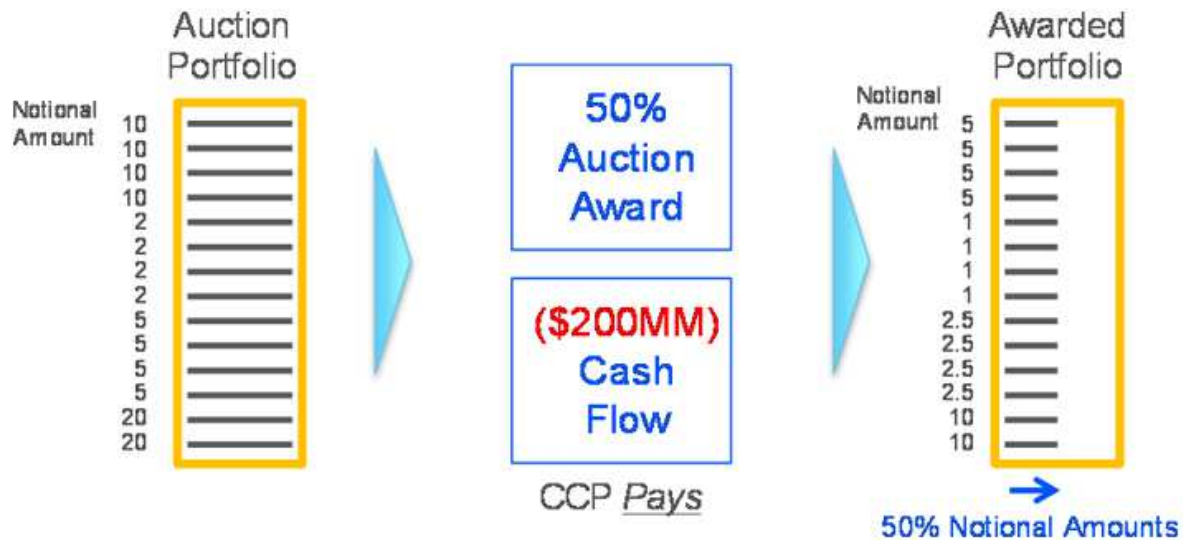
Table 7 defines the standard terminology related to auction awards. Figure 12 provides an illustration of the relationship between Auction Portfolio, Auction Award and Awarded Portfolio.

TABLE 7: STANDARD TERMINOLOGY AND CONVENTIONS FOR AUCTION AWARDS

Term	Description / Comments
<p>2.2.6.1 Auction Award</p>	<ul style="list-style-type: none"> • Portion of an Auction Portfolio / Bidding Package for which ownership will be transferred from the CCP to a winning auction participant.

<p>2.2.6.2 Awarded Portfolio</p>	<ul style="list-style-type: none"> Actual positions for which ownership will be transferred from the CCP to a winning auction participant. Includes the result of rounding on the notional amounts / number of contracts/lots for each position. <ul style="list-style-type: none"> For example, if three auction participants are awarded 1/3 of an Auction Portfolio containing one position with a notional amount of \$100 million, rounding awarded notional amounts to the nearest dollar and allocating any remainder amongst the winners results in two of the three winners receiving a position with a notional amount of \$33,333,333.00 and one winner receiving a position with a notional amount of \$33,333,334.00.
<p>2.2.6.3 Invoice Amount</p>	<ul style="list-style-type: none"> The required payment between the CCP and a winning auction participant related to a given Auction Award. <ul style="list-style-type: none"> Negative = CCP pays auction participant. Positive = Auction participant pays CCP.
<p>2.2.6.4 Clearing Price</p>	<ul style="list-style-type: none"> For a Modified Dutch auction, the clearing price is the lowest price bid by a winning auction participant, i.e. the worst winning price from CCP perspective.

FIGURE 12: RELATIONSHIP BETWEEN AUCTION PORTFOLIO, AUCTION AWARD AND AWARDED PORTFOLIO



2.2.7.LIFECYCLE

Table 8 defines the standard terminology related to the auction lifecycle. Figure 13 provides stylized illustration of the auction lifecycle.

TABLE 8: STANDARD TERMINOLOGY AND CONVENTIONS RELATED TO THE AUCTION LIFECYCLE

Term	Description / Comments
2.2.7.1 Summary Auction Specification	<ul style="list-style-type: none"> A table provided to potential auction participants by the CCP, which defines the terms of an auction using a standard format and standard terminology.
2.2.7.2 Publication Time	<ul style="list-style-type: none"> The date and time that the Auction Portfolio will be made available by the CCP to auction participants.
2.2.7.3 Bidding Open	<ul style="list-style-type: none"> The date and time that the CCP will begin accepting bids.
2.2.7.4 Bidding Close	<ul style="list-style-type: none"> The date and time that the CCP will stop accepting bids.
2.2.7.5 Bidding Extension Period (optional)	<ul style="list-style-type: none"> Maximum period of time by which the CCP may extend the Bidding Close.
2.2.7.6 Expected Auction Completion Time (optional)	<ul style="list-style-type: none"> The date and time by which the CCP estimated it will have communicated auction results to auction participants.
2.2.7.7 Bid Expiration Time	<ul style="list-style-type: none"> The time or duration after Bidding Close for which bids are actionable. It should generally be longer than (but may be equal to) the Expected Auction Completion Time.

FIGURE 13: STYLIZED EXAMPLE OF THE AUCTION LIFECYCLE



2.2.8. SUMMARY AUCTION SPECIFICATION TEMPLATE

Table 9 provides an illustration of the Summary Auction Specification template in tabular form. For each item in the template, Sections 2.2.7 (a) through (x) either provides the appropriate definition or a reference to the relevant definition elsewhere in this document.

a) Related Default Event

The CCP may provide a short description of the circumstances leading to the auction, for example “Lehman Brothers Bankruptcy”.

b) Auction Reference

A unique reference for the auction, so that stakeholders can use it on subsequent communications to avoid confusion with other ongoing auctions.

c) Clearing Service

CCP name, or, if the CCP divides its clearing business into separate business lines by asset class, geography, or otherwise, the CCP identifies the relevant characteristics. Clearing business lines often have separate clearing memberships and default funds.

d) Auction Portfolio

Short description of the positions in the Auction Portfolio, for example “Sovereign Single Name CDS”.

e) Publication Time

Date and time from which it will make the Auction Portfolio available to approved auction participants.

f) Standard CCP Auction Type

“Single Unit Pay Your Price”, “Multi-Unit Pay Your Price”, “Modified Dutch” or “Selective Bidding”.

g) Tie Break Rules

The CCP provides the rules that it will use in tie breaking situations when it receives multiple bids of the same Price and, due to the bids received at a higher price, cannot award all auction participants submitting those same-Price bids their requested Size. Examples include “Pro-rata based on Size”, “Random Selection” and “First Received Bid”.

h) Bidding Open

See 2.2.7.3.

i) Bidding Close

See 2.2.7.4.

j) Bidding Extension Period (optional)

See 2.2.7.5.

k) Expected Auction Completion Time

See 2.2.7.6.

l) Bid Expiration Time

See 2.2.7.7.

If CCP wants to extend the Bid Expiration Time, it should confirm with bidders that their bids are still actionable. If bids are no longer actionable, CCP may have to rerun the auction.

m) Participant Type

The CCP states the type of participation for the given auction participant. The type of participation may be “Clearing Member - Voluntary”, “Clearing Member - Mandatory”, “Direct Participating Customer - Voluntary”, “Direct Participating Customer - Mandatory”. If a clearing member and/or the CCP has yet to complete required approvals for the participation of a Direct Participating Customer, the CCP should also state “Subject to final CCP / clearing member approvals”, or similar language.

n) Minimum Bid Requirement

See 2.2.5.4.

o) Auction Currency

See 2.2.5.1.

p) Offered Packages (Selective Bidding Auctions only)

All Offered Packages available in a Selective Bidding auction.

q) Bidding Package Selection Rules (Selective Bidding Auctions only)

Description of the valid combinations of Offered Packages that an auction participant may bid on.

r) Minimum Bid Size

See 2.2.5.3.

s) Bid Size Increment

See 2.2.5.2.

t) Price Increment

See 2.2.5.5.

u) Reserve Price

See 2.2.5.6.

v) Maximum Price

See 2.2.5.7. The CCP should state its public Maximum Price, if applicable, or state “Private” or “None”. If the CCP has the ability under its rules and procedures to set or

revise a private Maximum Price after receiving bids, it should also state, “Maximum Price subject to revision based on received bids”.

Optional Items:

w) Bidding Incentives

The CCP provides a high-level description of any mechanism that it will use in the auction to incentivize participation and/or competitive bidding, for example “Default funds subject to juniorization if Minimum Bid Requirement is not met”.

x) Participant Funds Subject to Bidding Incentives

The CCP provides the value of the auction participant’s default resources that it will expose to bidding incentive in the given auction.

TABLE 9: STANDARD AUCTION SPECIFICATION TEMPLATE

Item	Specification
Related Default Event	• _____
Auction Reference	• _____
Clearing Service	• _____
Auction Portfolio	• _____
Publication Time	• _____
Standard CCP Auction Type	• _____
Tie Break Rules	• _____
Bidding Open	• _____
Bidding Close	• _____
Expected Auction Completion Time	• _____
Bidding Expiration Time	• _____
Participant Type	• _____
Minimum Bid Requirement	• _____
Auction Currency	• _____

Item	Specification
Offered Packages	• _____
Bidding Package Selection Rules	• _____
Minimum Bid Size	• _____
Bid Size Increment	• _____
Price Increment	• _____
Reserve Price	• _____
Maximum Price	• _____

<i>If applicable:</i>	
Bidding Incentives	• _____
Participant Funds Subject to Bidding Incentives	• _____

3. OPERATIONAL ASPECTS OF AUCTION PROCEDURES

3.1. DEFAULT AUCTION PROCESS

This section describes the various elements and considerations when designing a CCP's default auction process.

While porting of non-defaulting clients can be crucially important for the broader default management process, it is out of scope of this set of papers on auctions. Nonetheless, it remains a topic of interest for the industry.

Hedging - Hedging can be an important tool to de-risk an auction portfolio and to remove time pressure in fully liquidating the portfolio. The hedging should be undertaken in the most appropriate way for the products involved that reflects market practice of those products. Whether the risk in a portfolio should be hedged prior to auction or closed out in the auction will depend on the specific situation. Auctions generally work better for a hedged portfolio, but an unhedged portfolio may be appropriate where markets are more one-sided or complex to manage. CCPs require flexibility on the extent and details of hedging, so that they can utilize their judgment as to the best providers of hedges while minimizing information leakage. CCPs may macro-hedge an auction portfolio, although the extent to which this is possible will depend on the asset class. This may require monitoring and re-hedging (dynamically hedging) until the portfolio is fully closed out. However, where the auction portfolio is directional and large with relatively low liquidity in the market such that the CCP cannot efficiently liquidate the trades immediately on an exchange, a synthetic hedge (i.e. not an exactly equal and opposite position) may be considered to reduce the market risk profile of the portfolio.

Auction participation and bidding¹⁴ - The number of participants a CCP should involve in a default auction will depend on the product set and the make-up of the membership. There is great diversity in the scale, complexity, geographical distribution, and concentration of cleared markets, limiting the degree of specificity that can be suggested for participation. For example, it may be appropriate for some clearing services to require all members to participate in auctions as they tend to have a small, highly sophisticated membership. However, it may not be appropriate for other clearing services, which may clear a diverse set of products and have a large, diverse membership profile, including small market specialists who may not have the operational capacity to bid in all products/circumstances.

Considerations for mandatory or voluntary auctions are described below.

Mandatory Auction - The CCP may decide that the auction portfolio will be subject to a mandatory auction whereby all clearing members with positions on the relevant contracts are "included based on the CCP's rules" and are required to bid for the portfolio. While many CCPs conduct their default management through the open

¹⁴ Further work on auction participants will be done under category 2, where client participation in auctions is discussed.

market, the option of holding a mandatory auction can be a useful addition to the alternatives for CCPs to rebalance to a matched book following a default.

Non-mandatory Auction - The CCP may decide that the auction portfolio will be subject to an auction whereby the auction is open to any qualified participants, with such participation being voluntary. A non-mandatory auction may be appropriate in situations where:

- Voluntary participation gives sufficient numbers;
- Participation by non-clearing members is common or necessary;
- The CCP believes that it is an efficient way to restore the CCP's position to a balanced book, in the event that there are a limited number of those able to participate in a mandatory auction; or
- As a final auction in the event that a mandatory auction is unsuccessful.

Incentives and disincentives – The success of CCP auctions is supported by the incentive and disincentive framework surrounding it. The robustness of auctions may be enhanced by shaping the manner and the behavior of participants that affect their degree of exposure to gains or losses from the default management process. In the most extreme circumstances, if surviving participants are unable or unwilling to take over positions from defaulting members, then the continuity of their own transactions is affected. In less severe cases, participants as well as the CCP may have an interest in an incentive and disincentive structure that ensures fairness given mutualization. The types of incentives and deterrents depend largely on the market and legal framework, and regulators may in certain jurisdictions have additional measures of their own; therefore, the following measures are non-exhaustive. CCPs should consider, for certain markets, e.g., where mandatory participation is required, providing an additional bidding incentive framework such as juniorization or seniorization of the members' default fund contributions (i.e., good bids are rewarded or seniorized, while the outliers get juniorized), while avoiding as much as possible negative consequences for non-defaulting members who were not required/asked to bid. Other measures include penalties for failing to perform on default management obligations, regulatory reporting of perceived anti-competitive actions, or in extremis, a higher weighting of recovery measures towards the member. CCPs should define all such frameworks for incentivizing effective default management participation clearly for clearing members ex-ante, in order to ensure that they can make reasoned choices establishing fairness for members, as well as achieving the desired effect on behavior.

Determining whether the auction is successful - A successful auction is one where the CCP has managed to close the market risk as a result of the default and has returned to a matched book. The use of financial resources layers beyond margin, including default fund and replenishment, is not necessarily a consequence of the auction process. The success of an auction will depend on the nature of the position being auctioned, the unique circumstances of the market at the time of the auction and the bidding by the auction participants. Where practiced, a reserve price provides CCPs the ability to fill or partially fill an auction and exclude bids that do not reflect the CCP's reasonable estimate of market

value¹⁵. The determination of a reasonable estimate of market value, including an appropriate risk premium, will be made by the CCP taking into consideration, at that point in time, the market conditions, the available market information, and the nature and extent of bidding. Even if the CCP has sufficient default resources to pay the winning bidders, a determination will need to be made whether the bids reflect a “reasonable estimate of market value (which may reflect a risk premium)” at the time of the auction. If the bids do not reasonably reflect a “reasonable estimate of market value (which may reflect a risk premium)” at the time of the auction, the CCP could expose itself to claims from interested parties including the trustee of the defaulter’s estate, clearing members who provided contributions to the default fund that were mutualized or who were assessed, and other impacted market participants. The CCP should have the power to determine whether the bids resulting from an auction reflect market prices or not.

Portfolio information leakage containment – CCPs strive to balance the needs of a robust default auction with many participants and containing the auction portfolio information so that there is no further knowledge from the auction process on the specifics of the positions. CCPs control this by only allowing bidders who have knowledge of the default management process, have previously tested with the CCP, and have shown to be engaged participants. Also, CCPs generally have rules that prohibit front-running any market with any information gleaned from the default management auction process. Certain CCPs currently utilize a functionality to conduct two-way bidding that also may help constrain information from the general market. This process involves taking the auction portfolio and applying a reverse mechanism to the directionality of each position, hence, mirroring the original portfolio. The purpose of two-way bidding is to hide the directionality of the original portfolio and allow auction participants to be presented with both portfolios. Finally, more bidders might lead to information leakage.

Subsequent Auction - Should an auction fail, subsequent auctions could be appropriate in instances including but not limited to:

- Insufficient number of participants;
- Failure of participants to provide bids;
- Sub-optimal portfolio split;
- Lack of liquidity or unfavorable market conditions; and
- The bids exceeded the waterfall and might trigger recovery or resolution.
- Inadequate auction configuration.

¹⁵ While clearing members support the right of the CCP to determine whether auction bids are valid prices, many clearing members believe that a mechanically applied reserve price could remove flexibility from the CCP if these reserve prices result in an auction failure despite the CCP having received valid bids that indicate a market price which is worse than the reserve price. If the auction fails for this reason, the CCP may have to repeat the auction while the market might have moved against the CCP. Clearing members therefore do not support “hard reserve prices”.

3.2. OPERATIONAL CONSIDERATIONS AND READINESS

As a best practice, the CCP should seek to automate the technical aspects of its default management process. Auction participants should be able to easily digest and value a portfolio using pre-defined formats and participate in an auction using a platform designed and tested for that purpose.

Communication of the Default Event - Each CCP should define its communication protocol on the default auction taking into account applicable governance and regulatory considerations.

Auction Platform - Where available, the use of an auction platform is recommended. Such portals provide flexibility and allow clearing members to access remotely from any location and time zone, therefore enabling a CCP to run an auction efficiently and effectively. Access controls such as single-sign-on and two-factor authentication methods will also protect the integrity of the default management auction. Access to the platform should be tested on a regular basis and could be tested – time permitting - when the default management process commences to avoid technical issues, for instance from changes to members' IT configurations and cyber security frameworks. CCPs can utilize notification alerts within the portal or automated emails (generated by the portal) and manual emails (raised by the default management team) as the transmission methods during a default management auction. The auction platform should be sufficiently flexible to enable any changes to the auction format, participants, or other features determined by the CCP in the given circumstances.

Pre-publishing information - A CCP could address the trade-off between sufficient transparency and data security by publishing preliminary auction file packs that include adequate portfolio specifics for auction participants to operationally prepare data loads and perform portfolio analysis, but at the same time, omit sensitive information, which is designed to protect market integrity by not disclosing the CCP's side. A default management system can be designed to allow clearing members to download the auction positions into the clearing member's internal proprietary systems for pricing and risk analysis. CCPs can provide portfolio margin requirements and relevant position files to clearing members so that the clearing members themselves are able to assess the impact on their margin requirements. To prevent erroneous bids, CCPs should provide some metrics of the auction positions, for instance, the mark-to-market (MTM) as of the last settlement run or the standalone initial margin (IM) requirement of the portfolio. CCPs should consider standardization of method and form of communication and could prepare draft or template communications ex-ante for auction participants.

Post Auction action - After the auction closes, CCPs should award the bids to the winners as soon as practicable or suitable for the market in question, which for many markets means immediately or within minutes of the auction close. Details of the auction may be shared with the CCP's primary regulatory authority. At the appropriate time and taking into account the sensitivities for the defaulted member and any related litigation, the CCP may review the results of the auction to determine if improvements could be made. Based on the facts and circumstances, the CCP may share the outcome of their review with relevant risk committees and auction participants at the appropriate time. Care must be taken to ensure that such

communication does not lead to confidential information disclosure or otherwise affect winners or losers of auctions.

Default Drills - Firms who bid on the auction portfolio should have appropriate risk management and operational capabilities. Default management testing allows auction participants to become more familiar with a CCP's operational default auction processes and procedures. Importantly, this also facilitates a member's understanding of its own processes. Managing an event relating to the default of any large financial institution will require a coordinated effort across impacted CCPs. CCPs should consider coordinated testing for operational, legal, logistical and technological preparedness by organizing simultaneous/joint default auction drill exercises. These joint drills will help CCPs, market participants and regulators uncover and resolve issues regarding default auction processes and procedures. The joint drills shall be led by the regulatory authorities acting in cooperation with each other. Key areas include testing communications channels, risk management coordination, utilizing common trading resources, and also testing of clearing member preparedness (resource allocation and technological capacity) by requiring that they respond to multiple simultaneous default auction-related inquiries from various CCPs. The default drills should also test actions required to rebalance beyond the auction itself, including CCPs own liquidating capabilities client porting (where porting is used by the CCP).

Where there is significant product overlap, joint default drills should be formalized across CCPs, with an agreement reached as to the frequency of drills, scenarios and shocks tested in drills, and required participants.

Operationally focused exercises are designed to test the integrity, functioning and effectiveness of information technology systems and procedures supporting default management auctions. An end-to-end default management testing exercise tests the functioning of the complete default management process, including all stakeholders involved. The default drill reports, including lessons learned should be shared with the relevant stakeholders where applicable. Where necessary, CCPs should consider imposing appropriate consequences where members fail to participate.

Default drills should be conducted at least annually and should include multiple CCPs, clearing members and clients, where appropriate.

Portfolio preparation for the auction - CCPs should ex-ante consider the liquidating capabilities of their non-defaulting members when determining whether and how they should sub-divide a portfolio in any auction.

The objective of sub-dividing a portfolio would be to optimize the outcome of the auction or liquidation approach by enhancing the number and quality of participants, taking into consideration the trading capabilities and size of a portfolio that a pool of potential bidders are able to absorb. By splitting the portfolio into a number of subsets, CCPs may be able to increase participation and minimize the risk of a failed auction.

CCPs also need to take into consideration whether the strategy of splitting a portfolio may increase the risk to the CCP by eliminating risk-reducing position netting sets, margin offsets

and cross-margining arrangements to avoid creating directional risk. This would be of particular importance in the case of well-diversified portfolios and needs to be balanced against the question “who can bid on what” above.

Auction terminology and file formats - CCP’s should clearly communicate the auction parameters/ terms to its bidders, including the type of the auction, award time, bidding convention, auction window time, etc. (see Section 2).

Simultaneous Auctions by one CCP¹⁶ - CCPs should consider the number of auctions being executed simultaneously, the size and complexity of the auction positions and the particular and unique market circumstances when determining the amount of time that bidders will have to evaluate positions prior to bidding. Where positions contain instruments, which trade primarily in regions with disparate time zones, CCPs may wish to consider whether auction participants have sufficient time to consult with traders in those regions.

Time to bid - CCPs should consider historically the time required by auction participants in default management tests to price positions and provide bids. Any knowledge gained by the CCP from tests or otherwise related to the level of operational automation between the CCP and its auction participants, and within its auction participants, should also be considered. Furthermore, the time needed could be impacted by contract type (e.g., liquidity), auction format (e.g., two-way or multi-unit pricing), and time zone. Whether or not the position has been hedged may also be a factor influencing bid timing. Furthermore, CCPs should take into consideration that the longer the period of time before an auction, the higher the likelihood for prices to diverge from the last observable price. The risk of information leakage and the misuse of the provided data also increase as the time between a default and the auction is extended.

3.3. LEGAL READINESS

Terms of Reference for the Default Management Advisory Committee - Clear “terms of reference” of any default management committee/ advisory group will ensure that the members fully understand their role. Where possible and applicable, formalized agreements should be in place for brokers and seconded traders to help the CCP manage a default. Such agreements should cover the compliance aspects of privileged information that participant staff may be privy to during and after the default management.

Ex-Ante auction participation agreements – In relation to voluntary auctions or where not adequately covered by the CCP’s rules, it will be beneficial if a member or client would indicate ex-ante that they would bid in an auction. Where possible, clearly executed agreements should be in place in order for clearing members and their clients to directly or indirectly participate in the auction.

Confidentiality agreements to prevent information leakage - As a best practice and to minimize the risk of information leakage, a CCP should put in place confidentiality agreements with all auction participants, including both members and direct participants.

¹⁶ Simultaneous Actions by several CCPs will be covered under category 3.

Depending on the legal framework, NDA provisions could also be part of the rulebook. Firms involved in hedging and the auction must follow all usual rules on managing conflict of interest and client confidentiality.

Financial binding of bids - Bidding submission platforms (communication method) should have an appropriate legal framework to ensure that the bids are financially binding.

4. Notes to the editors

4.1. About CCP12

CCP12 is the global association for CCPs, representing 37 members who operate more than 60 individual central counterparties (CCPs) globally across the Americas, EMEA and the Asia-Pacific region.

CCP12 promotes effective, practical and appropriate risk management and operational standards for CCPs to ensure the safety and efficiency of the financial markets it represents. CCP12 leads and assesses global regulatory and industry initiatives that concern CCPs to form consensus views, while also actively engaging with regulatory agencies and industry constituents through consultation responses, forum discussions and position papers.

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4.2. About EACH

The European Association of CCP Clearing Houses (EACH) is a Belgian not-for-profit organisation (AISBL) founded in 1992 which represents the interests of central counterparty clearing houses (CCPs) in Europe. The membership is open to CCPs based in the European Union and in other European countries. The membership of EACH comprises 19 CCPs incorporated in 15 European countries. EACH is registered in the European Union Transparency Register with number 36897011311-96.

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4.3. About FIA

FIA is the leading global trade organization for the futures, options and centrally cleared derivatives markets, with offices in Brussels, London, Singapore and Washington, D.C. FIA’s membership includes clearing firms, exchanges, clearinghouses, trading firms and commodities specialists from about 50 countries as well as technology vendors, law firms and other professional service providers.

FIA’s mission is to:

- support open, transparent and competitive markets,
- protect and enhance the integrity of the financial system, and
- promote high standards of professional conduct.

As the principal members of derivatives clearinghouses worldwide, FIA’s clearing firm members play a critical role in the reduction of systemic risk in global financial markets.

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4.4. About ISDA

Since 1985, ISDA has worked to make the global derivatives markets safer and more efficient. Today, ISDA has over 925 member institutions from 74 countries. These members comprise a broad range of derivatives market participants, including corporations, investment managers, government and supranational entities, insurance companies, energy and commodities firms, and international and regional banks. In addition to market participants, members also include key components of the derivatives market infrastructure, such as exchanges, intermediaries, clearing houses and repositories, as well as law firms, accounting firms and other service providers.

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