

# Eurex Clearing

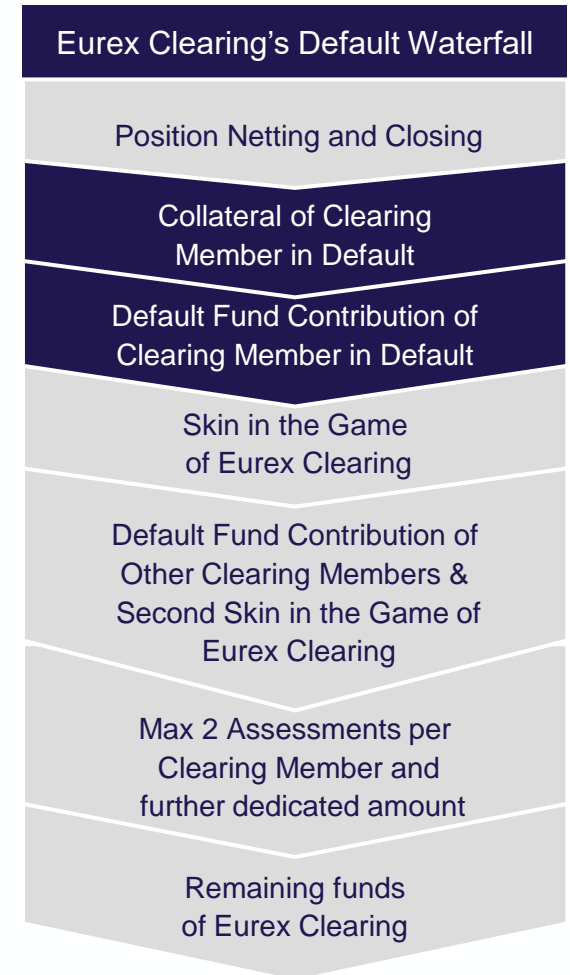
Default Management Process



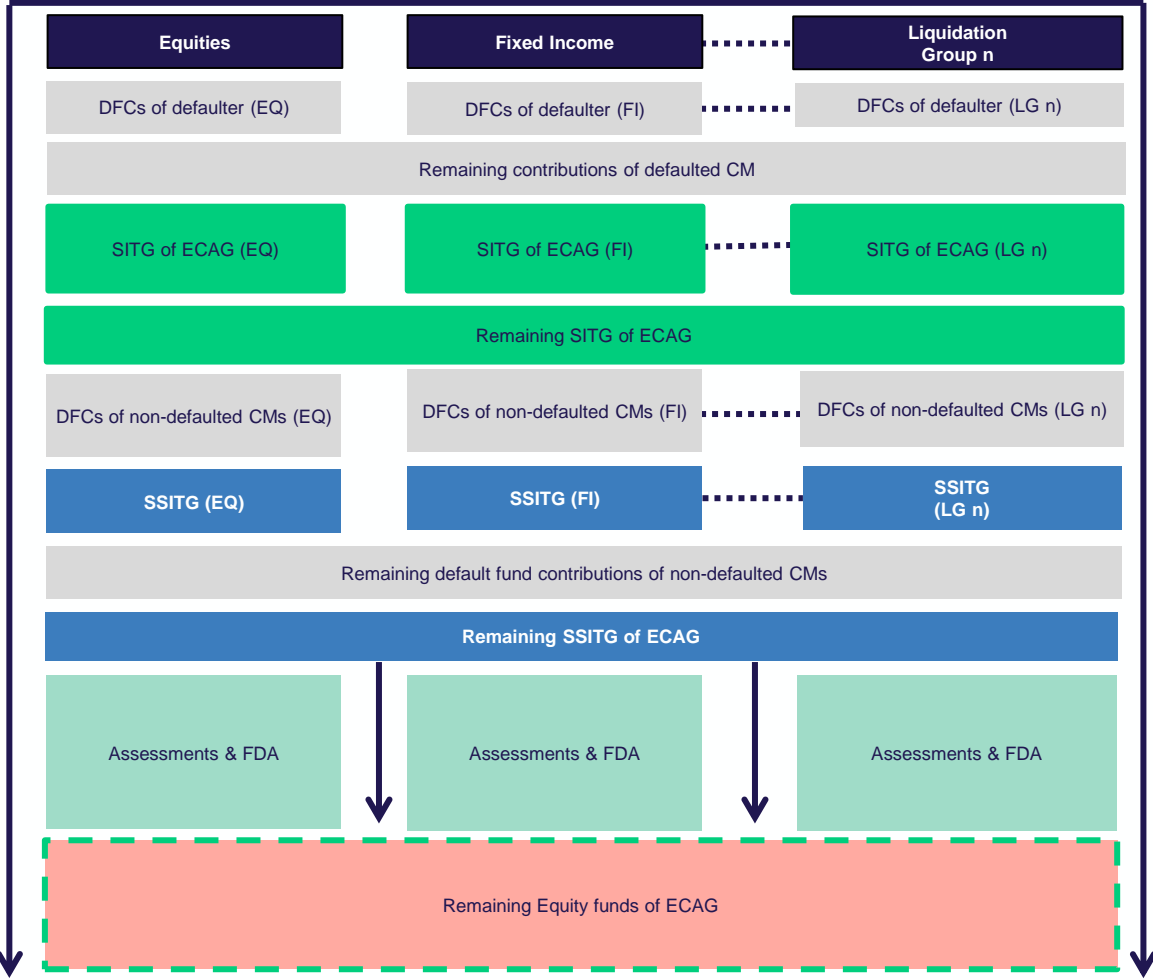
# Eurex Clearing's Default Waterfall

Minimize the effect on the Default Waterfall and to stabilize the markets

- Eurex Clearing provides a multi-level security system
  - First the collateral and the Default Fund contribution of the member in default are utilized.
  - After the defaulter's contributions are exhausted, an assigned dedicated amount of Eurex Clearing, a so-called "Skin in the Game", is applied, before non-defaulting clearing members' Default Fund contributions, a "Second Skin in the Game" and remaining capital of Eurex Clearing are used.
  - Each clearing member's contribution to the Default Fund is based on a minimum contribution and a dynamic component, accounting for the individual clearing member's risk situation.
- There is one segmented Default Fund for all types of products cleared by Eurex Clearing.
- Following a realization of any Default Fund contributions of non-defaulted clearing members, such clearing members are asked to provide assessments to their contributions. Eurex Clearing simultaneously provides the further dedicated amount.
- Clearing members' total liability is limited as they have to provide a maximum of two assessments per capped period.



# Segmentation of Default Waterfall



- Each layer of the Default Waterfall is segmented along the liquidation group structure. The size of a Default Fund Segment (DFS) is based on the Initial Margin of the Clearing Member in the respective liquidation group.
- Only the respective DFS can be used to cover losses in case of a default, unless there is a known surplus from other liquidation groups.
- The defaulter’s contributions will be exhausted prior to any contributions from others.

For updated estimates of the total resources please refer to: [Default Waterfall \(eurex.com\)](http://eurex.com)

# Overview of Default Management Process

Default Management Process reflects best practice and complies with market requirements and regulatory guidelines



- Trigger analysis and convention of **Emergency Committee**
- Board decision on **member suspension/termination**
- Kick off **Default Management Process**
- Convention of **Default Management Committees** to support Eurex Clearing
- **Porting of Client positions and collateral** wherever possible
- **Portfolio analysis** per liquidation group
- Handling of short expiry positions
- Execution of **macro hedge** strategy
- **DMC-supported hedging** execution of defaulted portfolio as early as possible to limit potential losses  
*bilateral or via Hedging Auctions*
- **Hedging trade documentation**
- **Bilateral (OTC) or on-exchange trades** to liquidate the (hedged) portfolio from CCP perspective
- For particular asset classes (e.g. bonds) independent sale is the **first-choice close-out strategy**
- Mutual Default Fund will generally not be utilized, unless all Clearing Members have the chance to provide a price in the auction
- Participation in **auctions** is **mandatory** for members capable from an operational and risk perspective to absorb the respective portfolio
- **Clients are allowed** to bid via their clearing member
- **Default Fund juniorization and penalty fee** set incentives for competitive bidding
- Calculate **Difference Claim** per Master Agreement closed-out
- Realization of **CCP's lines of defense** if defaulter's assets cannot fully cover the Difference Claim result
- **Default Fund juniorization (if applicable)**
- **Penalty fee** for eligible Clearing Members (if applicable)

# Each Default Management Committee supports the Default Management Process

## Default Management Committees (DMCs)

### Role of the DMC

- Each DMC is continuously defined, but only temporarily convened in case of a clearing member default or for regular default simulation exercises.
- One DMC for each liquidation group shall advise, assist, and provide recommendations to Eurex Clearing in defining hedging strategies and organizing auctions.

### Nomination of DMC Members

- Clearing members can volunteer to participate in any DMC. In case of insufficient number of volunteers, Eurex Clearing nominates additional clearing members based on size (in terms of cleared volume 3 months prior to selection).
- Upon nomination, the clearing member has to nominate a DMC Member and a DMC Deputy and to provide CVs to prove that the nominees have sufficient knowledge and expertise to fulfil the required tasks within the DMC. Representatives from affiliated entities can be nominated as well.

### Obligations during a clearing member default

- In case of a default, the current DMC Members
- make themselves available within a short period of time,
- identify suitable hedging strategies for the defaulted member's portfolio,
- support parametrization of auctions before auction takes place (e.g. duration of pricing period)

# Hedging reduces sensitivity to market movements and stabilizes portfolios during auctions

Hedging to be executed on liquidation group level

## Purpose of hedging

- Hedging is an essential element of the Default Management Process – it enables Eurex Clearing to
  - reduce the impact of market movements during the DMP and
  - stabilize the portfolios for auctions.
- Timely hedging is important to limit losses during the Default Management Process.

## Cornerstones

- In order to conduct efficient hedging, the following cornerstones are defined:
  - For each liquidation group, a set of preferred instruments, qualified to reduce market, and potentially cash-flow risk is predefined.
  - These instruments are part of the liquidation group to be hedged.
  - Decision on the respective hedging strategy will be taken by Eurex Clearing based on advice of the DMC.
  - The hedging strategy can be executed either on exchange or OTC, with any transaction cleared at Eurex Clearing.

## Hedge quality

- The quality of a hedge is measured in terms of reduction of the initial margin requirement.
- Reduction of sensitivities is the basis for the decision if and how to hedge.
- Available liquidity and cost of the hedge is considered.

# Hedging Auctions

Hedging is the most critical step in a Default Management Process, where the transfer of market risk happens. In the past, Eurex hedging process relied on the voluntary Clearing Member participation. The changes will enhance the hedging process with **mandatory participants**.


The process enhancements allow:

- To **Formalize** and improve the **selection of hedging counterparties**, to have committed and capable members supporting Eurex portfolio hedging activities. The hedging counterparts will be known, the capabilities will be polled in regular **Liquidity Surveys** and the process will be tested in fire drills.
- To **Ensure** Eurex Clearing's access to broader Liquidity pools. The **accessible liquidity** influences the Liquidity Adjustment component of the Initial Margin. Commitment from a set of liquidity providers allows to account for indirect market access in the calibration of the Liquidity Adjustment.
- Those clearing members who want to benefit from such hedging transactions to **participate** according to **fair** and **adequate incentives**. The participants can benefit economically winning the hedge-trade at their own price, seniorize their default fund tranche and support rebalancing of the CCP in a critical situation.


# Hedging Auction Format

- Hedging auctions are designed to allow for a quick transfer of material market risk.
- Eurex Clearing plans to integrate the Hedging Auctions into the existing Auction Platform. Currently, Hedging Auctions are run through Bloomberg chat, and will be multi-unit with disclosed size, pay-as-you-bid, and two-way pricing.
- All participants in the auction will (generally) have the same minimum requirements, and will be allowed to bid for a larger portion than the requirement.
- The auction participants shall have the ability to show an “all or nothing” price.

An auction participant will know:	An auction participant will <u>not</u> know:
The total size of the portfolio	The direction of the portfolio
The number of auction participants	The identity of the other participants



✓ Participants can assess the potential market impact in the pricing



✓ Information leakage and front running are prevented

Eurex Clearing will not accept or mandate Clearing Members to a Mandatory Hedging Auction, if they are not already opted-in. For more information on the topic please contact [DMP\\_Inbox@eurex.com](mailto:DMP_Inbox@eurex.com)



# Independent Sale: Selling portfolios independently through trading on-exchange or OTC

Eurex Clearing will sell 'small' or 'special' portfolios independently

- Flexibility is important in a default situation and some portfolios are rather suitable for an independent sale instead of a structured auction.
- 'Small', 'special' or dedicated asset class portfolios can therefore be liquidated by bilateral trades or on-exchange.
- An independent sale will be executed prior to an auction only if the respective losses do not exceed the defaulting clearing member's margin collateral and Default Fund contribution.

## Small portfolios

A portfolio is regarded as small if the defaulting portfolio is not part of the top 50% clearing members ranked by initial margin.

## Special Portfolios

A portfolio is regarded as special if less than or equal to five clearing members clear products in this liquidation group.

## Bonds Portfolios

Due to the fragmented bonds market structure, bond positions are intended to be liquidated via bilateral trades.

# Eurex Clearing conducts auctions with mandatory participation by clearing members active in the respective liquidation group

## Auction format for the liquidation group OTC Interest Rate Swaps

### Auction Format

- One way, one off, sealed bid, single-unit auction per currency.
- Best bid takes the full portfolio all at the given price (No upper/lower limits on price).
- Individual OTC transactions will not be split.
- An OTC portfolio can only be split by currency and risk product.
- An auction portfolio might contain listed fixed income derivatives used for hedging purposes.

### Auction Participants

- Mandatory participation for clearing members active in the currency
  - holding the necessary clearing license to acquire the portfolio,
  - being active in the currency during the last 3 months prior to default.
- Non-mandatory clearing members and clients are allowed to submit bids in any auction should they wish to. Clients need the permission of their clearing member.
- Clearing members may be released from their mandatory bidding obligation based on:
  - the transactions entered by the clearing member,
  - the Initial Margin requirement of the clearing member with respect to the relevant Liquidation Group within 3 months prior to the default.

# Eurex Clearing conducts auctions with mandatory participation by clearing members active in the respective liquidation group

Auction format for the liquidation group Fixed Income Derivatives (ETD)

## Auction Format

- Two-way, one-off, sealed bid, multi-unit, pay-as-you-bid auction with respect to identical auction units.
- Best bid wins the amount of auction units that it was provided for at the given price.
- A bid is economically reasonable if the price spread between the two prices submitted is within the given maximum spread, and any economically reasonable bid is accepted.

## Auction Participants

- Mandatory participation for all clearing members
  - holding the necessary clearing license to acquire the portfolio,
  - being active in the liquidation group during the last 3 months prior to default and
  - having the necessary infrastructure in place to process the products.
- Each auction participant is requested to bid at least for an individually defined minimum amount of auction units, depending on the initial margin of the auction participant relative to the overall initial margin in the liquidation group.
- The sum of the minimum amounts across all relevant clearing members exceeds 100% of the auction portfolio.
- Clients can participate in auctions with permission of a clearing member (bids are considered for the minimum bid size calculation).

# Eurex Clearing conducts auctions with mandatory participation by clearing members active in the respective liquidation group

Auction format for the liquidation group FX & Cross Currency Swaps

## Auction Format

- One way, sealed bid, single-unit auction per currency pair.
- The best bid takes the full portfolio at the given price (no upper/lower limits on price).
- Individual transactions will not be split.
- Portfolio can only be split by currency pair.

## Auction Participants

- Mandatory participation for clearing members active in the currency pair
  - holding the necessary clearing license to acquire the portfolio,
  - being active in the currency during the last 3 months prior to default.
- Non-mandatory clearing members and clients are allowed to submit bids in any auction should they wish to. Clients need the permission of their clearing member.
- Clearing members may be released from their mandatory bidding obligation based on:
  - the transactions entered by the clearing member,
  - the Initial Margin requirement of the clearing member with respect to the relevant Liquidation Group within 3 months prior to the default.

# Eurex Clearing conducts auctions with mandatory participation by clearing members active in the respective liquidation group

Auction format for the liquidation group Equities Derivatives

## Auction Format

- Two-way, one-off, sealed bid, multi-unit, pay-as-you-bid auction with respect to identical auction units.
- Best bid wins the amount of auction units that it was provided for at the given price.
- A bid is economically reasonable if the price spread between the two prices submitted is within the given maximum spread, and any economically reasonable bid is accepted.

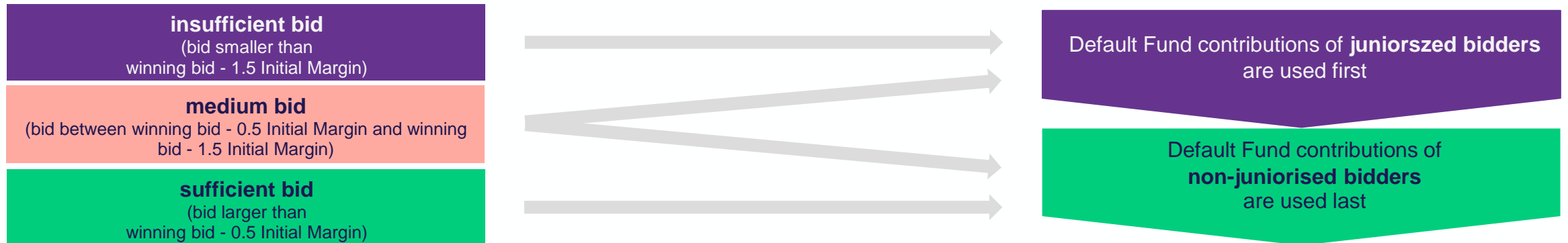
## Auction Participants

- Mandatory participation for all clearing members
  - holding the necessary clearing license to acquire the portfolio,
  - being active in the liquidation group during the last 3 months prior to default and
  - having the necessary infrastructure in place to process the products.
- Each auction participant is requested to bid at least for an individually defined minimum amount of auction units, depending on the initial margin of the auction participant relative to the overall initial margin in the liquidation group.
- The sum of the minimum amounts across all relevant clearing members exceeds 100% of the auction portfolio.
- Clients can participate in auctions with permission of a clearing member (bids are considered for the minimum bid size calculation).

# Loss distribution and penalties set incentives to provide competitive prices in the auction

Loss distribution for liquidation groups OTC Interest Rate Swaps and FX & Cross Currency Swaps

- Bids are ranked according to their quality relative to the winning bid.



- Medium bidders are partly juniorised according to scaling function:
  - $\text{Relative weight of Member Bid} = ((\text{Winning Bid} - 0.5 \text{ IM}) - \text{Member Bid}) / \text{IM}$  (floored at 0, capped at 1)
- Utilization amongst juniorised and seniorised Default Fund contributions is done on pro rata basis.
- Non bidders are juniorised and pay penalty, depending on their Default Fund contribution relative to the overall Default Fund contributions, and capped at EUR 5 mn.
- If no bids are provided then Eurex Clearing approaches all clearing members to provide them with a “last look” opportunity to provide bids for the respective portfolio.

# Loss distribution and penalties set incentives to provide competitive prices in the auction

## Loss distribution for the liquidation group Equity Derivatives

- If during the auction not all positions are re-established, any non-bidding auction participant is subject to a contractual penalty, defined as a combination of:
  1. Monetary fine of 500,000 EUR per 1% slice of the overall portfolio, for which the clearing member should have provided a bid, but failed to do so. The monetary fine is capped at EUR 5 mn. This monetary fine is not applicable if the third component of the contractual penalty applies.
  2. Juniorisation of the clearing member's Default Fund contribution in case any losses occur which exceed the contributions of the defaulted clearing member.
  3. Claim of Eurex Clearing towards the clearing member to cover the losses resulting from positions, for which Eurex Clearing remains unbalanced. This part of the fine can be avoided by voluntarily entering into respective transactions with Eurex Clearing at the auction price or a subsequently held independent sale, even after the auction was finalised.
- In case no auction unit has been auctioned, Eurex Clearing approaches all clearing members to provide them with a “last look” opportunity, to provide bids for the respective portfolio.

# Independent sale as main component of default management process for bond liquidation group and replacement for special repo or GC Pooling transactions

Clearing members can volunteer to be contacted by CCP in a crisis situation

- In the bond liquidation group, Eurex Clearing intends to sell all ISINs taken over from a defaulted Clearing Member via independent sale preferably via Bloomberg.
- The process of Eurex Clearing entering into replacement Special Repo or GC Pooling transactions, is also conducted via independent sale.
- Participation in an independent sale is always voluntary.



# Eurex Clearing conducts auctions with mandatory participation by clearing members active in the respective bond clusters

## Multi unit auction for remaining ISINs for long bond positions

### Auction Format

- Eurex Clearing sub-divides cleared bonds into dedicated clusters with similar bonds grouped by currency, region and issuer/bond type.
- Auction participation requirements are based on the respective clusters.
- One way, one off, sealed bid, multi unit pay-as-you-bid auction with respect to identical auction units per cluster.
- Best bids win the bid on amount of auction units at the provided bid price.

### Auction Participants

- Mandatory participation for all clearing members
  - holding the necessary clearing license to acquire the portfolio,
  - have been active in the respective bond cluster during the last 3 months prior to default,
  - for GC Pooling collateral taker, have filled out the bond trading sheet and
  - have the necessary infrastructure in place to process the products.
- The need to define bidding obligations only in proportion to a clearing member's risk exposure is a direct requirement of Article 37 (6) EMIR and serves to foster general market stability.
- Each auction participant is to bid at least for an individually defined minimum amount of auction units, depending on the initial margin of the auction participant relative to the overall initial margin in the bond cluster.
- The evaluation considers any activity across cash provider / bond purchaser and cash taker / bond seller.
- Clients can participate in auctions with permission of a clearing member.

# Loss distribution and penalties set incentives to provide competitive prices in the auction

## Loss distribution for Bond liquidation group

- To encourage clearing members to comply with their bidding requirements, Eurex Clearing will juniorise the default fund contributions of clearing members
  - not providing a valid bid during the bond auctions or
  - providing bids below a so called 'reference price\*' defined in the Clearing Conditions.
- Any non-bidding bond auction participant is subject to a contractual penalty, defined as the lower amount of:
  1. a monetary fine of 5,000,000 EUR for any fraction of the portfolio (calculated on the basis of the Additional Margin Requirements) for which the CM should have submitted a bid or
  2. the sum of the Additional Margin requirements for all Bonds Auction Units for which the CM should have submitted a bid.

\* Reference Price: Worst Winning Bid – 0.5 Risk Parameter

# Independent sale as main component of default management process for Cash Market position

- Eurex Clearing invites all clearing members to participate in a cash market product process.
- Participation takes place on a voluntary basis.

## Purchasing principles for short positions

- To prevent the clearing community from being cornered / squeezed, Eurex Clearing defines a maximum price accepted in the purchasing process per ISIN:

Maximum Re-Purchasing Price = minimum of

- a) Settlement price prior night + 0.5 \* margin parameter
- b) Settlement price before day of default + 1.1 \* margin parameter

- Only if all attempts to purchase a respective ISIN fail, Eurex Clearing will cash settle respective positions at the above-defined maximum price.

# Risk assignment (1/2)

## Position allocation recovery tool

### Legal requirement

- Annex, Section A (4): "The recovery plan shall include the following items: ... (4) a comprehensive range of capital, loss allocation, **position allocation** and liquidity actions required to maintain or restore the viability and financial soundness of the CCP including to restore its matched book and capital..."

### Impact on ECAG

- **The introduced amendment of the Clearing Conditions** complements the currently available option to tear-up (cash settle) the entire Liquidation Group, which is too broad, by a more granular tear-up mechanism.
- **The respective amendment of the 2021 Recovery Plan** reflects the introduced PTUs as a loss allocation recovery tool.

### Amendments to the Clearing Conditions

#### ETDs

- **Pro-rata tear-up of open positions** with non-defaulted Clearing Members, which have open cleared opposite positions that offset the defaulted Clearing Member's positions remaining on the CCP's book after unsuccessful liquidation attempts.
- For **pricing of the positions**, if reasonable bids are received during a partially successful auction, tear-up will be executed at auction price. As a fall-back tear-up it will be executed at the last available settlement price determined by Eurex Clearing.

#### Swaps

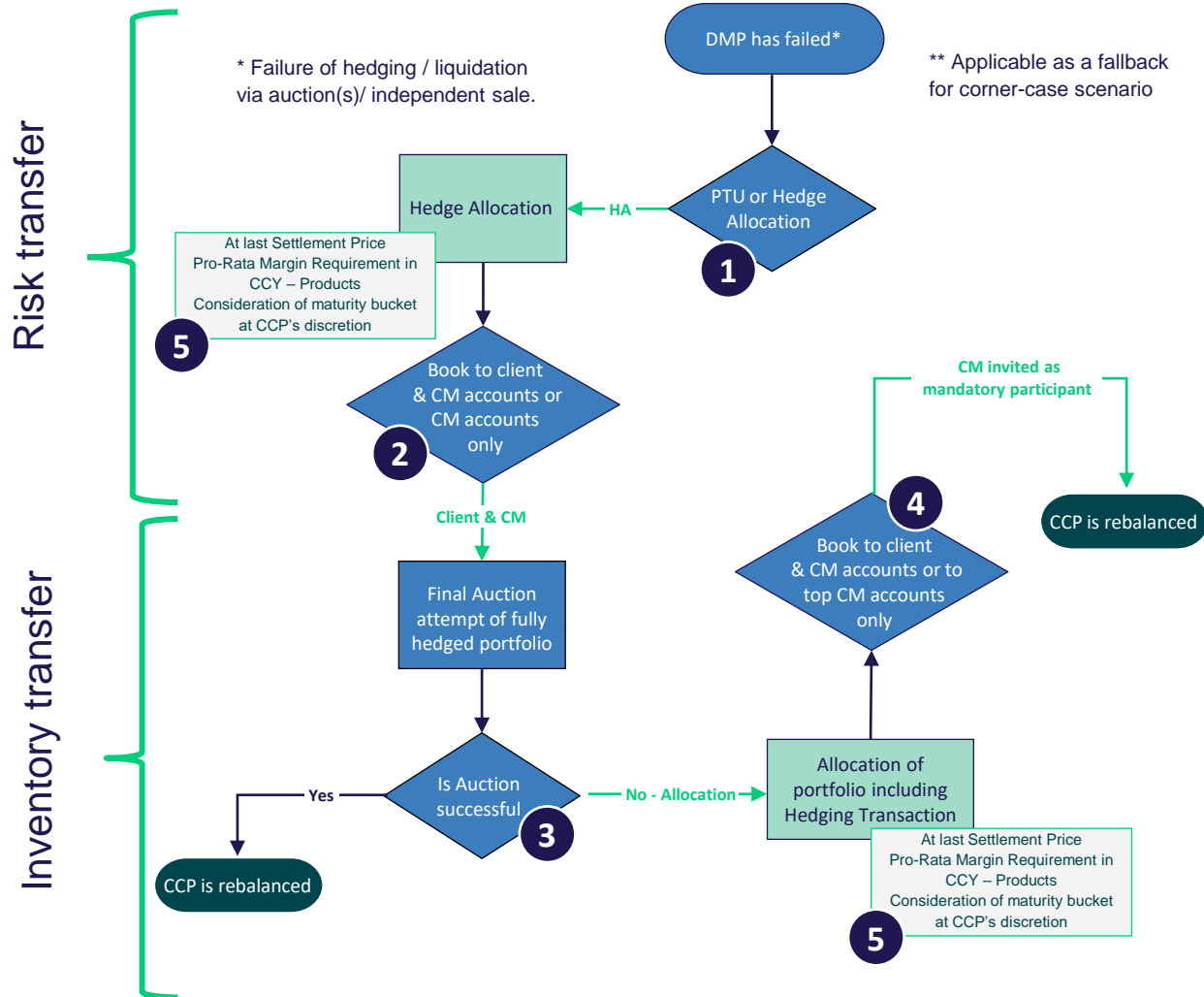
- **Mandatory execution of hedging transactions** with non-defaulted Clearing Members which have open positions in the affected product and currency at the time when the process is executed. Transactions will be executed at the last available settlement price. Once the portfolio of Eurex Clearing is hedged with the mandatory hedging transactions, **another DMP auction attempt will be triggered**.
- **In case such an auction attempt fails**, as a matter of last resort, the remaining portfolio will be transferred at the last available settlement price to all non-defaulted Clearing Members which qualify and have been invited to auctions as mandatory participants in the affected product and currency.



- Amended Clearing Conditions effective as of **30 December 2020**.

# Risk assignment (2/2)

## Process of risk assignment for swaps



- 1** Hedge allocation creates smaller risk shifts than PTU on minimal set level
  - 2** Hedges are booked to the end users pro-rata based on open risk exposure towards the CCP. Treatment/passing on of recovery and resolution tools between Clearing Members and their clients is subject to bilateral agreements.
  - 3**
  - 4** Portfolio allocation creates smaller risk shifts than cash settlement of a product in affected currency
  - 4** Portfolio Allocation is risk-free and can be operationally better absorbed by large Clearing Members
  - 5**
- Allocation Parameter**

- Hedge and portfolio trades allocation is based on:
- Pro-rata 3-months IM requirement in the CCY-product: ensures that participants receive risk in proportion to risk exposure towards the CCP which they can manage accordingly
  - Flexibility for the CCP to further subdivide the IM requirement on maturity bucket level, considering following criteria:
    - Liquidity of the currency per tenor
    - Risk structure of the affected portfolio
  - At last available Settlement Price: Most up-to-date stable price calculated by the CCP according to predefined rules which are transparent to the members

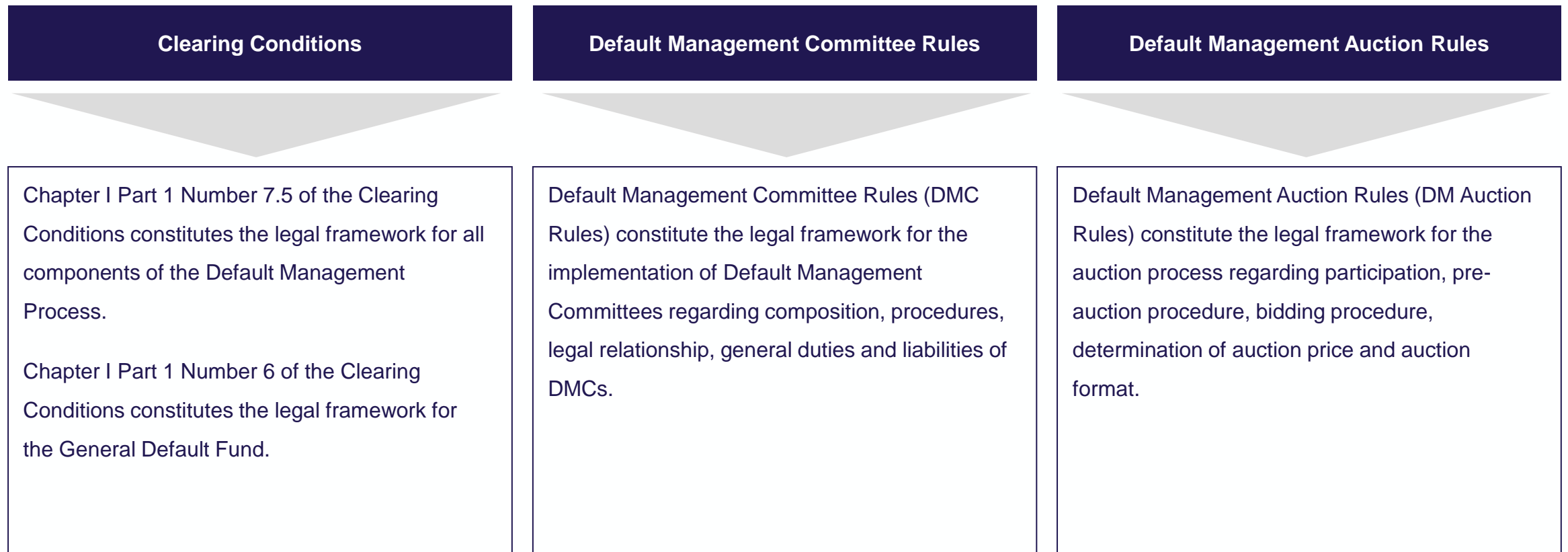
# Clearing members' responsibilities within the DMP

Responsibilities within the process start prior to a default situation

	Obligation	Description
Prior default	<b>Nominate DMC Member</b>	Clearing members participating in a Default Management Committee (DMC) need to nominate one DMC Member and one DMC Deputy, assisting the clearing house in supporting the hedging, Independent Sale and auctions during the Default Management Process in case of a clearing member default and for regular default simulations. Representatives from affiliated entities can be nominated as well.
	<b>Participation in fire-drills</b>	Clearing members are obliged to participate in regular fire-drills. The fire-drills are intended to test and evaluate the DMP, including (for example) pricing of portfolios.
	<b>Provide contact details</b>	To assist with communication, Eurex Clearing requires all clearing members to supply an appropriate DMP contact and DMP contact details.
During default	<b>Providing market access to obtain best prices</b>	Eurex Clearing expects non-defaulted clearing members to support the risk reduction process by providing the clearing house with competitive prices for hedge transactions or during an Independent Sale.
	<b>Bidding in auctions</b>	Non-defaulted clearing members are obliged to participate in the competitive auction process and submit prices for the hedged portfolio. Disclosed Clients or any other customer of a Clearing Member can participate in the auctions as well, thus fulfilling the bidding obligations of their clearing members (as applicable).
	<b>Taking on client positions from defaulted clearing member</b>	Whilst clearing members are not legally obliged to take on clients from a defaulted clearing member they are expected to assist in the execution of the DMP. Clearing members therefore should work with clients seeking a new clearing member and, providing that the take-on of the client would not significantly impair the clearing member's own business objectives, be prepared to take on the client(s) trades and collateral in a streamlined and timely manner.

# The legal framework is built upon three major documents ensuring the enforceability of the Default Management Process

## Legal framework for DMP





# Appendix



# Eurex Clearing assigns products according pre-defined criteria

## Liquidation group criteria

### Liquidation process

- Products in one liquidation group follow the same liquidation logic:
  - Products follow the standard liquidation process with auction as central element
  - Products with deviating liquidation procedures need to be assigned to separate liquidation groups

### Proximity

- Products within a liquidation group allow for objective proximity:
  - Proximate products have a set of common risk factors
  - Proximity represents market standard, regulatory and business understanding

### Hedge-ability

- Only products which can be hedged together are in one liquidation group:
  - Positions in one liquidation group can be stabilized in case of a default by means of a common pre-defined hedging strategy
  - Hedge-ability is validated in regular default simulations and internal periodic reviews
  - Hedge-ability is based on quantitative metrics

### Price-ability

- The products can be priced by market participants active in the Liquidation Group:
  - Simple extendibility of existing Pricing/Risk/Position management systems to process the product
  - Sufficient number of market participants should be able to price the products in a certain period of time
  - Price-ability is validated in regular default simulations together with all clearing members

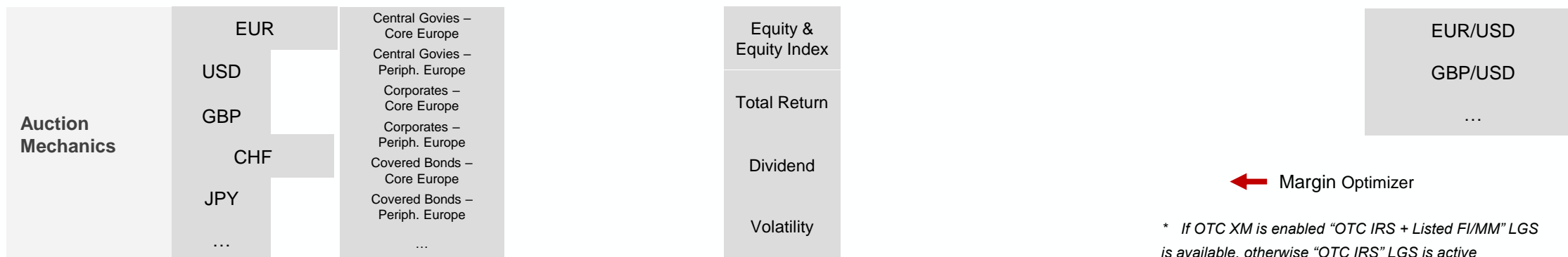
# Liquidation group setup

Each Liquidation Group has a pre-defined Holding Period (HP)

- In general, margin calculations and Default Management Process are performed on Liquidation Group level, however:
  - For Liquidation Group “Fixed Income Derivatives” Liquidation Group Splits “OTC IRS” and “Listed FI/MM” are in place whereby margin efficiencies can be achieved between the splits. For Liquidation Group “FX Derivatives” currently cross margining effects between the Liquidation Group Splits are not applicable.
  - Default Management Process is executed for “OTC IRS” per currency, for “FX Derivatives” per currency pair and for “Bonds” per predefined bond clusters due to market characteristics and respective setup on the member side.

Liquidation Group	Fixed Income Derivatives (PFI01)	Corp. Bond (PCB01)	Bonds (PBN01)	Asian co-op KRW FX Derivatives (PAF01)	Asian co-op KOSPI (PAC01)	Listed Equity Derivatives (PEQ01)	Collateral Index (PEQCO)	Fixed Income ETFs Derivatives (PEF01)	Crypto Derivatives (PCY01)	Commodity (Index) Derivatives (PCM01)	Precious Metal Derivatives (PPM01)	Listed FX Derivatives (PFX01)	FX NDF (PNF01)
		HP: 2 days	HP: 2 days	HP: 2 days	HP: 2 days	HP: 3 days	HP: 3 days	HP: 2 days	HP: 3 days	HP: 3 days	HP: 3 days	HP: 2 days	HP: 5 days

Liquidation Group Split	OTC IRS*	Listed FI/MM
	HP: 5 days	HP: 2 days



\* If OTC XM is enabled “OTC IRS + Listed FI/MM” LGS is available, otherwise “OTC IRS” LGS is active

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