

EquityClear

Service description



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Introduction

Who we are

LCH is a leading multi-national clearing house, serving major exchanges and platforms as well as a range of OTC markets. It clears a broad range of asset classes, including securities, exchange-traded derivatives, foreign exchange derivatives, interest rate swaps, credit default swaps and euro and sterling denominated bonds and repos. LCH works closely with regulators and clients to identify and develop innovative clearing solutions.

LCH Group Holdings Ltd is majority owned by the London Stock Exchange Group Plc, with the remainder being owned by certain clearing members of LCH and other exchanges.

What we provide

The fundamental benefits brought by having a CCP:

- Post trade anonymity;
- A clear risk management process; and
- Settlement netting to reduce settlement and operational costs.

The specific benefits brought by LCH through its LCH EquityClear service:

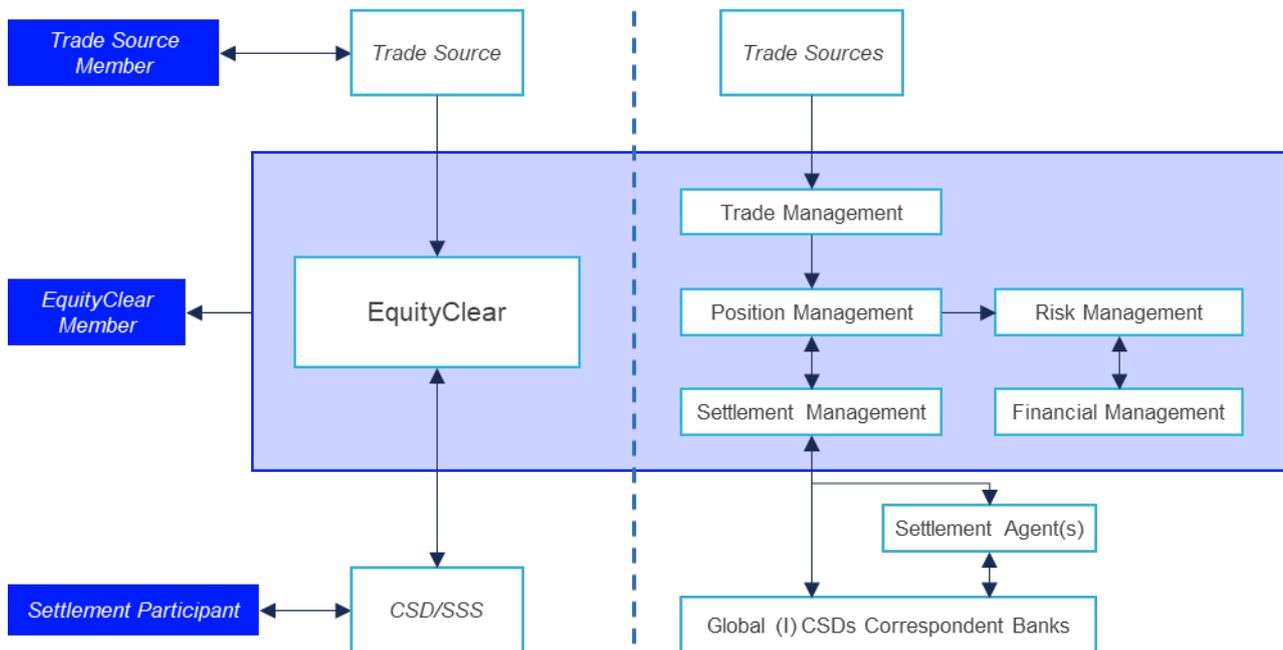
- An established and proven clearing service covering a broad range of global cash equities and associated products from trade sources including MTFs, OTFs and RMs;
- A broad and high quality membership;
- Risk management of the highest quality:
 - Robust and prudent risk management;
 - Experience in successfully managing member defaults and near misses; and
 - A margin algorithm specifically designed for the service. This recognises position correlations leading to lower margins and hence greater capital efficiencies for members than other margin algorithms used in the industry;

EquityClear | Service description

- EMIR and MiFIR compliant client segregated account structure options;
- Flexible netting and settlement options:
 - Trade date netting;
 - Four netting and aggregation options;
 - Cross trade source netting; and
 - Optional power of attorney instruction to settlement agents;
- Comprehensive European market access to local market CSDs¹ achieved directly or via settlement agent relationships;
- Established and proven operational, technical and customer support;
- User involvement in product design and governance; and
- The capability and capacity for product and service innovation.

¹ This includes Euroclear Bank and Clearstream Banking Luxembourg which are ICSDs.

Service overview



The LCH EquityClear service comprises the following:

Trade management

Trades are received and validated to ensure they correctly identify LCH as the legal central counterparty. Valid trades are registered and details enriched to clear and settle each trade in line with the member's preferences.

Position management

The open principal positions between LCH and its members are maintained in real time as trades are registered and positions settled, and updated overnight as corporate events are applied.

The account structures allow for client positions to be managed on an omnibus or individually segregated basis.

Settlement management

Positions are settled on a gross² or trade date net basis as preferred by our member or their settlement agent. Several netting and aggregation options are offered, which can be applied on a per trade source or cross trade source basis. Optional power of attorney instruction to settlement agents is available.

Risk management

Margin is calculated using the Equity Risk Analysis (ERA) algorithm, specifically designed for the service. Portfolio offsets are taken into account, providing accurate position analysis and hence prudent but relatively low margins compared with less tailored methods.

Member defaults are managed by the LCH Risk Management department through a well- established and proven process.

Financial management

The Treasury Department manages members' cash and collateral for margin cover and payments. Cash transactions are managed through the LCH protected payments system (PPS).

Member reporting

Members can elect to receive real time confirmation messages of their trades registered for clearing.

A full suite of reports covering all the above functional areas is available from the LCH member reporting service.

² Subject to certain market restrictions.

Products

LCH EquityClear clears thousands of securities across the following product types:

- Single company common stocks, including depositary receipts
- Exchange Traded Funds (ETFs)
- Exchange Traded Commodities (ETCs)
- Exchange Traded Notes (ETNs)
- Real Estate Investment Trusts (REITs)
- Rights*
- Subscriptions*
- Certificates*
- Warrants*

* When arising from corporate action events where the underlying is categorised as an equity.

Participants

As a central counterparty, LCH becomes the buyer to the seller and the seller to the buyer for each trade it clears. The buyer and seller must each be a member of LCH, must be acting in a principal capacity and must be one of the two membership categories:

- An individual clearing member (ICM), which can:
 - o clear trades it executes as a participant of a trade source.
- A general clearing member (GCM), which can:
 - clear trades it executes as a participant of a trade source; and/or
 - clear trades executed by other participants of a trade source.

LCH EquityClear supports participants who do not have clearing member status, namely:

- A non clearing participant (NCP), which can:
 - execute trades as a participant of a trade source using the services of a GCM to clear such trades.

Full membership details can be found on our website.

Settlement of contracts with clearing members is carried out using a central securities depository (CSD) or international central securities depository (ICSD). In certain circumstances cash settlement is via standard interbank payment. The clearing member can nominate the settlement participant against which LCH settles to be itself, the trading firm or a third party settlement agent.

Position management

The open principal positions between LCH and its members are maintained in real time as trades are registered and positions settled, and overnight as corporate events are applied.

Member accounts

Each member can operate using one or more notional business units which are each identified by a unique 'member mnemonic'.

For each member mnemonic two principle sub-accounts are available, a house account ('H') and a client account ('C'). Each member mnemonic and sub-account combination is referred to as a 'member account'.

Trading firms & settlement firms

The buyer and seller of each trade are given a unique identifier by the trading platform, known within LCH EquityClear as a trade system participant (Trade System Participant).

In certain circumstances, including the following, settlement netting at the Trade System Participant level may be sub-optimal:

- Where a firm uses multiple Trade System Participant identifiers at the trading platform but wants to net settle across them;
- Where a GCM wants to step into the settlement chain and net settle with LCH across some or all of its NCPs; and
- Where a 'model B' clearer wishes to net settle with LCH across its 'introducing brokers'.

LCH EquityClear allows for netting across Trade System Participants by introducing the concept of a settlement firm³, being the participant identifier used within the settlement netting process (Settlement Firm). The Settlement Firm can equally be considered as a position account.

Each Trade System Participant is mapped to a Settlement Firm⁴. This mapping can be different for each trading platform and CSD, providing flexibility for members.

³ The LCH EquityClear Settlement Firm should not be confused with a settlement agent who is a participant of a CSD which manages settlement.

⁴ In most cases, where settlement netting is at the level of the Trade System Participant, the Settlement Firm will be set to the same value as the Trade System Participant. Members can specify a different value if they prefer.

The identification of the appropriate Settlement Firm associated with a trade is made on receipt of the trade. It is the Settlement Firm of a trade that is the primary identifier of the member account through which the trade is cleared and the CSD settlement account through which it settles.

LCH EquityClear maintains positions per Settlement Firm and reports these to clearing members⁵.

Client segregation

Under EMIR (article 39), CCPs are required to provide for the segregation of client positions, the key relevant text being as follows.

1. A CCP shall offer to keep separate records and accounts enabling each clearing member to distinguish in accounts with the CCP the assets and positions of that clearing member from those held for the accounts of its clients ('**omnibus client segregation**').
2. A CCP shall offer to keep separate records and accounts enabling each clearing member to distinguish in accounts with the CCP the assets and positions held for the account of a client from those held for the account of other clients ('**individual client segregation**'). Upon request, the CCP shall offer clearing members the possibility to open more accounts in their own name or for the account of their clients.

Under MiFIR, a CCP is required to open and maintain indirect accounts (as described under MiFIR) in accordance with the request of a clearing member.

Accordingly, LCH provides three levels of segregation for client business:

1. Omnibus segregation of client business from house business.
 - The established segregation achieved through the house and client member accounts described above.
2. Individual segregation of client business from omnibus segregated client business.
 - This provides a client of a clearing member the option to have the positions and collateral held for its account to be segregated at LCH.
3. Segregation of indirect client business from individually segregated client business.
 - This provides clients of the client of a clearing member (Indirect Clients) the option to have the positions and collateral referable to such Indirect Clients segregated at LCH.

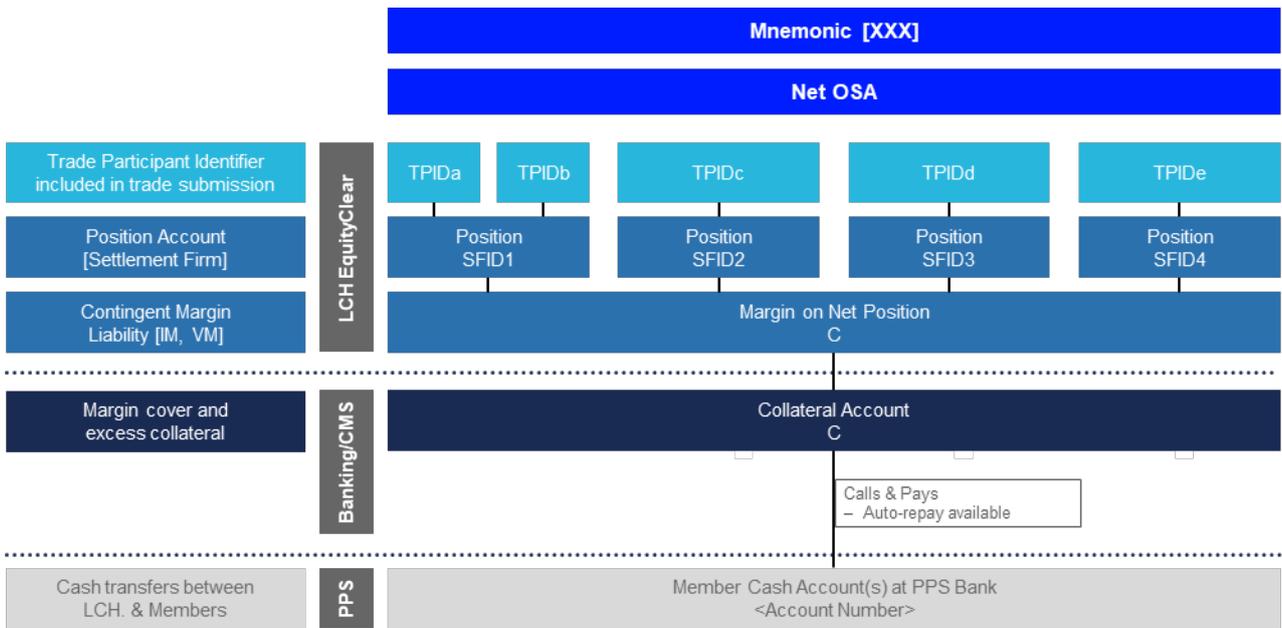
The segregation is of both open positions and collateral lodged with LCH. The different account segregation levels are illustrated below.

It should be noted that client segregation does not change the principal to principal relationship between LCH and each clearing member, in respect of all cleared trades.

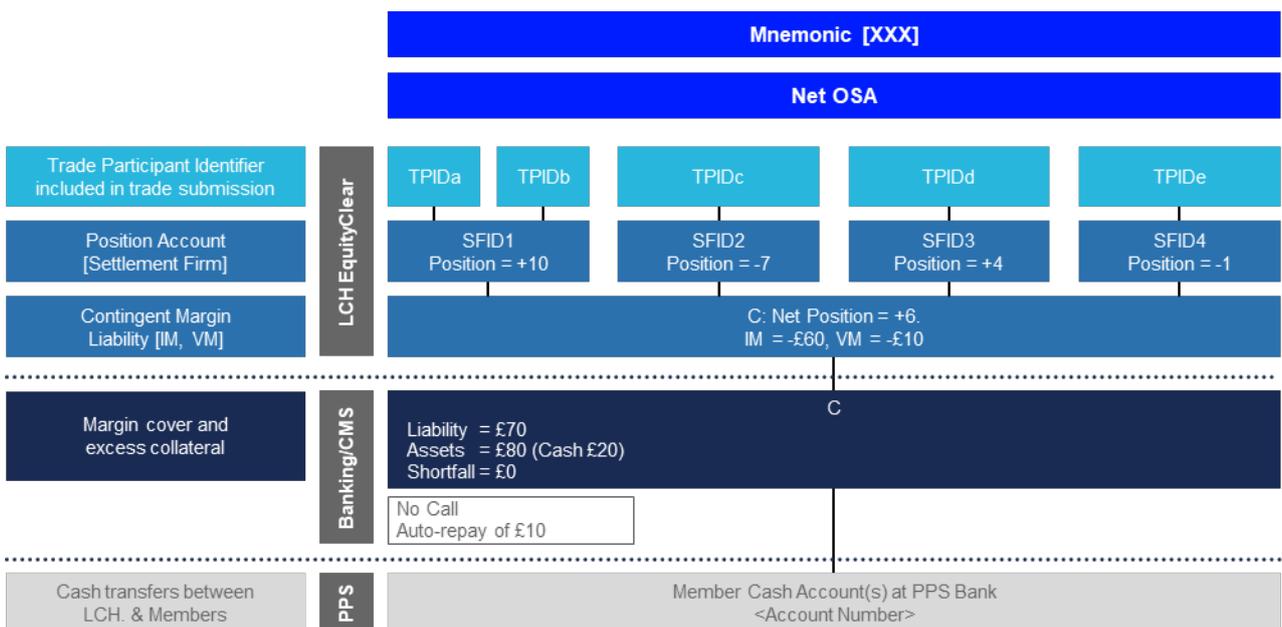
⁵ To allow GCMs to pass on clearing fees to NCPs, trade volumes are reported by Trade System Participant and not by Settlement Firm

1. Omnibus client segregation

The diagram below shows an example client account structure of a clearing member where all the client business is cleared through the client member account, also identified as a 'Net OSA' (Omnibus Segregated Account).

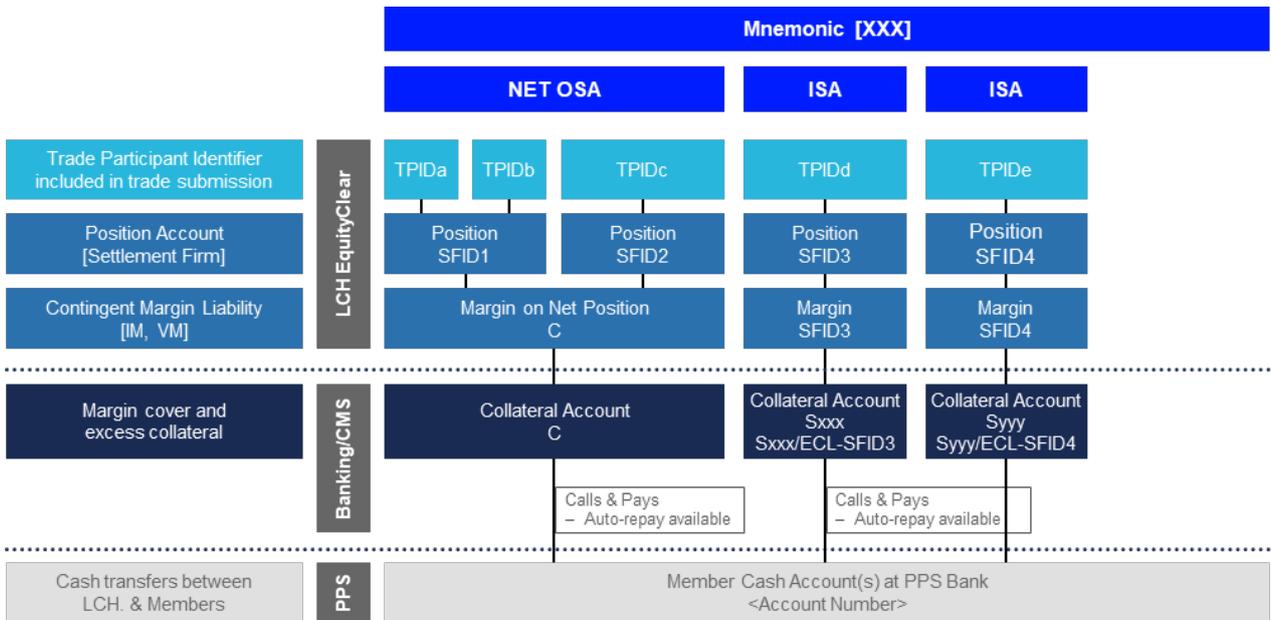


In LCH EquityClear the only actual accounts are the Settlement Firms (position accounts). In the example four are shown. The positions from all the position accounts are netted together to provide an omnibus position for the purposes of calculating the associated margin liability. This liability is sent to the banking system as being against the omnibus client member account ('C'). An example is shown below for the above scenario.



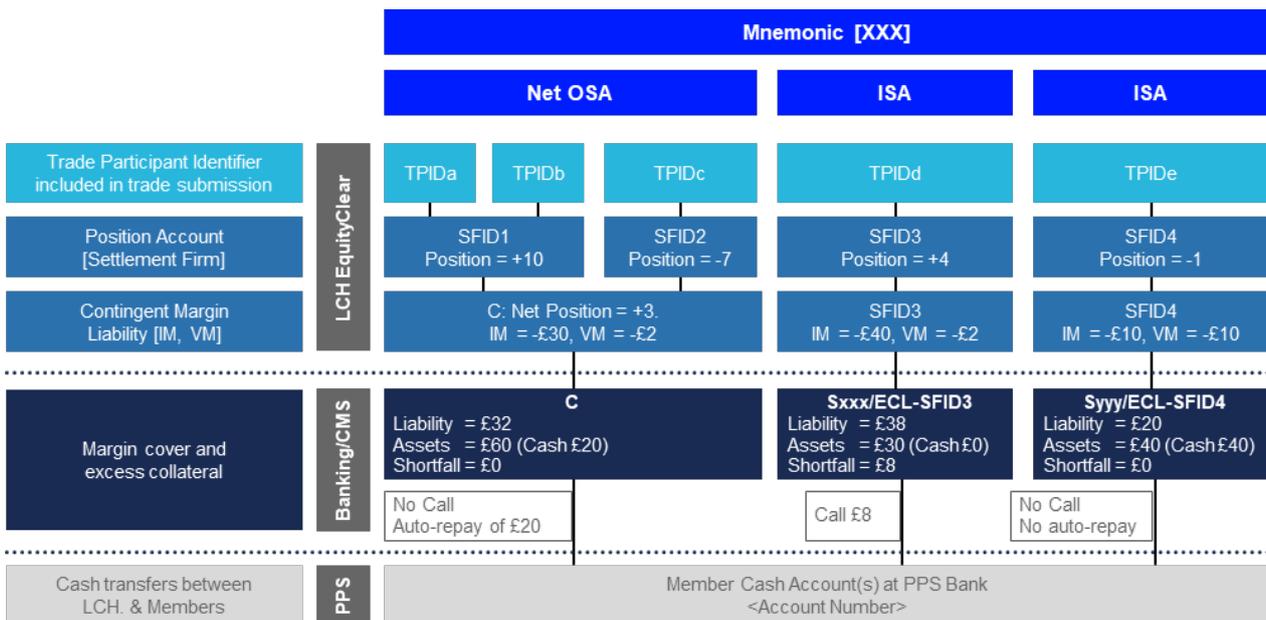
2. Individual client segregation

The diagram below is as the previous example but where the clients' whose positions are attributed to Settlement Firms SFID3 and SFID4 have elected to have their positions individually segregated, identified on the diagram as ISAs (Individually Segregated Accounts).



Only the positions in Settlement Firms SFID1 and SFID2 are netted together to provide the omnibus position for the purposes of calculating the associated margin liability.

The positions in SFID3 and SFID4 are used to calculate the margin liability for these accounts individually. The liabilities for SFID3 and SFID4 are sent to the banking system as being against the corresponding individual collateral accounts Sxxx and Syyy. An example is shown below for the above scenario.



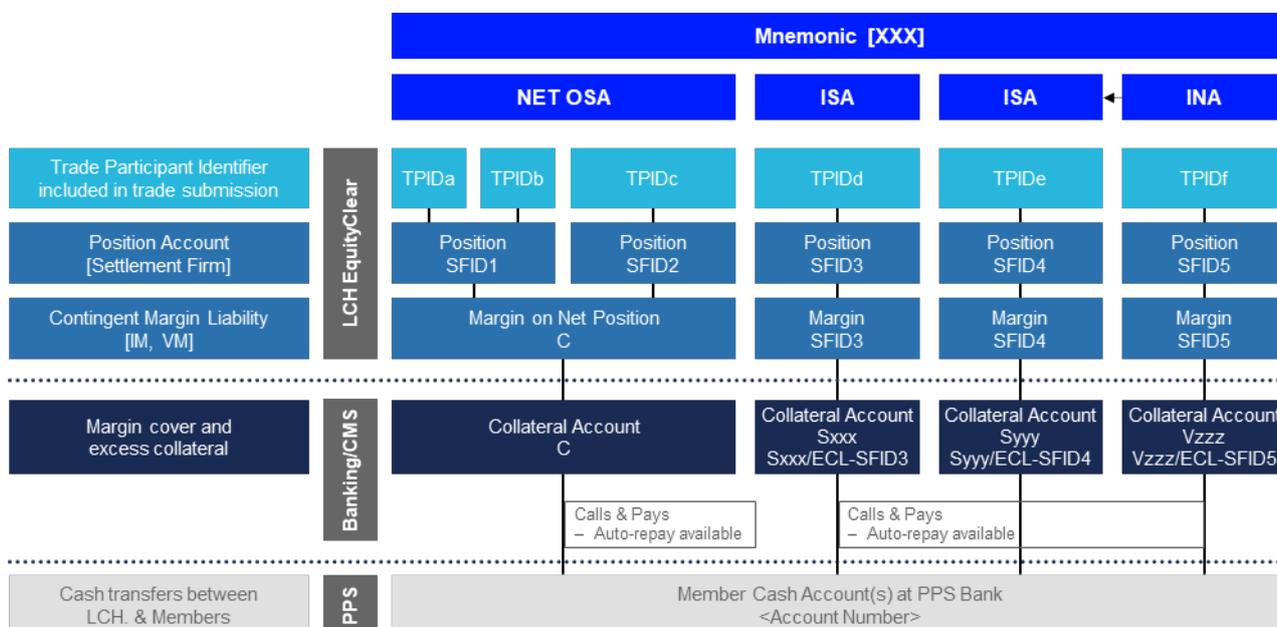
3. Indirect client segregation

a. Indirect Net Account (INA)

The diagram below is as the previous example but where one or more Indirect Client(s) of the Direct Client using SFID4 want their positions segregated from those of the Direct Client. To do this, the new Settlement Firm SFID5 is created to hold the segregated Indirect Client positions, which could relate to one, some or all Indirect Clients of the Direct Client. SFID5 is identified as an INA on the basis that it could hold the positions referable to one or more Indirect Client(s) of the Direct Client using SFID4, as well as the positions referable to one or more Indirect Client(s) of any other Direct Client.

It is important to note that, in order to segregate the Indirect Client positions, the trades must be executed using a different Trade System Participant identifier on the trading platform.

SFID4 holds the positions of the Direct Client who did not opt for Indirect Client segregation.



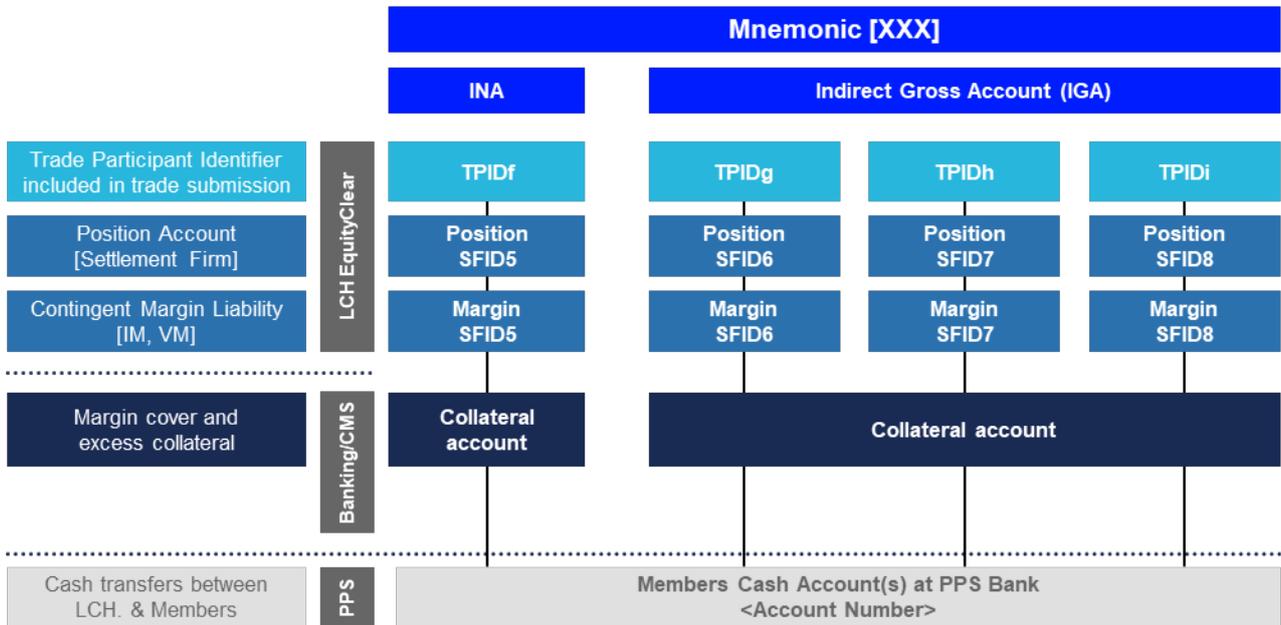
The positions in SFID5 are used to calculate the margin liability for this account which is then sent to the banking system as being against the corresponding individual collateral account Vzzz.

In the collateral system, the collateral account identifiers are differentiated, with ISA identifiers starting with an 'S' and INA identifiers starting with a 'V'.

b. Indirect Gross Account (IGA)

The diagram below is as the previous example but where each Indirect Client of the Direct Client requires a separate TPID and for their positions to be segregated from those of the Direct Client. To do this, multiple TPIDs are utilised (in this case TPIDg, TPIDh and TPIDi) and new Settlement Firms are created (in this case SFID6, SFID7 and SFID8) to hold the respective segregated positions of each Indirect Client. SFID6, SFID7 and SFID8 are collectively identified as an IGA on the basis that each Settlement Firm will hold the positions referable to a particular Indirect Client of the Direct Client (and no other Direct Client).

It is important to note that, in order to segregate the positions referable to a particular Indirect Client, the trades must be executed using a different Trade System Participant identifier on the trading platform.



The positions in SFID6, SFID7 and SFID8, respectively, are used to calculate the margin liability for each position account, which are then sent to the banking system as being against the corresponding individual collateral account.

Corporate Actions

In order to maintain accurate member positions and risk manage accordingly, corporate action obligations must be calculated and applied when they arise.

Trade management

LCH EquityClear is a mature service which provides flexibility to trade sources⁶, trading firms and clearing members in processing the trades it is asked to clear as CCP.

Trade validation

LCH checks that it is legally obliged to clear trades received from trade sources. Trades would therefore be rejected if:

- The security has not been agreed to be cleared by LCH; or
- A trade participant does not have clearing arrangements in place.

In both cases the trade source should not have sent the trade to LCH for clearing.

In addition, trades received may fail to clear for a range of technical, syntactical, logical or operational reasons.

Trade correction

Where a trade source has sent an invalid trade for clearing, it can send a trade cancellation on trade day and the trade will be removed from clearing.

Where a trading firm wishes to correct a trade, say a 'fat finger problem', the trade source will manage the request as allowed by its rules. If agreement is reached, the trade source can send a contra on trade day, being an opposite trade to the original. This is cleared as a new trade, with the trade reference to the original trade reported by LCH EquityClear if provided by the trade source on the contra instruction⁷.

Trade enrichment

The obligations arising from each trade must be:

- risk managed in a specific member's house account or segregated client account; and
- settled in a specific account in the appropriate CSD and a specific bank cash account where required.

⁶ A separate document is available to trade sources interested in connecting to the LCH EquityClear service. This provides details of the business and technical interface.

⁷ In some cases trade corrections are processed as cancellations.

LCH EquityClear allows clearing members to define which accounts to use.

Change of dealing capacity from agent to principal

Members can instruct LCH EquityClear to treat trades received with a dealing capacity of 'agent' as 'principal' trades. This is defined in reference data and is set by the Trade System Participant and trade source.

The dealing capacity will be shown on trade confirmations and trade reports as 'agent' to accurately reflect how the trade was received, but in all other respects will be processed and reported as if it had been received with a dealing capacity of 'principal'. The primary application of this facility is to enable settlement netting.

Member accounts & client segregation

Each trade to be cleared is identified as having a dealing capacity of principal or agency and optionally identified with a clearing sub-account⁸.

Members define through reference data the margin account through which each trade is to be cleared. It is defined for each combination of:

- Trade source;
- Settlement firm;
- Dealing capacity; and
- Sub-account (optional).

The following table shows examples of the choices that can be made.

Trade Source	Settlement Firm	Dealing Capacity	Subaccount	Member mnemonic	Subaccount
XXXX	BIC12345	Principal (P)		MMA	House (H)
XXXX	BIC12345	Agency (A)		MMA	Client (C)
XEEE	BIC98765	Principal (P)	House (H)	MMA	House (H)
XEEE	BIC98765	Principal (P)	Client (C)	MMA	Client (C)
XEEE	BIC98765	Agency (A)	House (H)	MMB	Client (C)
XEEE	BIC98765	Agency (A)	Client (C)	MMB	Client (C)

The first two rows show the case where no sub-account is provided on trades and the rest where it is provided. It can be seen in the fifth row that the sub-account defined by the member is different from the one provided on the trade. This caters for the situation where an NCP may incorrectly mark a trade to be cleared through the house clearing account whilst the GCM wants all the NCP's business cleared through their client clearing account. In this way the GCM can auto-correct the NCP's mistake.

Members can further define through reference data that the positions in a Settlement Firm are to be segregated from the omnibus client account. This Settlement Firm then operates as an ISA, IGA or INA as described in the position management section above.

⁸ In general the clearing sub-account is not identified on the trade message. This may be because the trade source does not provide the facility to do so or the Trade System Participant chooses not to provide it.

Settlement account

Members have flexibility to define their settlement preferences (see the section called 'Settlement Details' below).

UK stamp duty reserve tax (SDRT)

Where LCH is asked to instruct net settlements into CREST, it will operate as a CREST Stamp Data Provider (SDP) and will send the constituent trades as stamp assessed trades (SATs) into the CREST Stamp Duty Assessment Service.

Risk management

LCH undertakes robust and prudent risk management to meet its overriding objective to provide clearing members with a central counterparty of the highest quality and to safeguard the interests of the company's shareholders and clearing members.

LCH is a CCP of long standing with an extensive record of successful risk management. To support members and interested parties, detailed information can be found on our website.

Margin calculation

LCH EquityClear uses the ERA algorithm for the calculation of initial and variation margin. ERA was specifically designed for this service to significantly recognise portfolio offsets across LCH EquityClear positions, thereby keeping margin requirements low compared with other methods, whilst meeting the necessary level of risk management prudence.

Full details of the ERA algorithm are provided in a separate document, the ERA technical information pack (TIP). This includes an overview of margin terminology and the algorithm, full calculation details and worked examples including full test data.

At the end of each trading day a margin calculation is made, the results of which are integrated into the margin requirements for each collateral account across all LCH services.

A mid-day margin calculation is made and where there is insufficient cover an intra-day margin call will be made.

Further intra-day margin runs are made regularly and the facility for ad-hoc calculation due to exceptional circumstances is available to the LCH Risk Management department. Additional margin calls can be made based on these calculations but they are not a frequent occurrence.

Margin cover & payments

Variation margin requirements can be covered by cash in the same currency as the variation margin liability, while initial margin requirements can be covered in cash denominated in EUR, GBP or USD and/or a range of non-cash collateral.

LCH operates a direct debit system, known as the protected payments system (PPS), for the transfer of funds to and from clearing members. A clearing member is required to maintain a PPS bank account in GBP and (as required) other currencies. Full details of acceptable currencies and collateral can be found on our website.

Default fund

All positions managed through the LCH EquityClear service are covered by a common default fund.

CCP interoperability

Where a trade is made between two parties on a trade platform and each party chooses a different CCP to clear their trade then a balance contract automatically arises between the two CCPs on the same terms to ensure that each party retains a balanced book. The two CCPs are therefore said to 'interoperate' in managing the risk and settlement obligations arising between them.

The rights and obligations between interoperating CCPs are governed by a 'Master Clearing Link Agreement', which is subject to English law, and 'inter-CCP procedures'.

Each CCP has the risk that a CCP with which it interoperates goes into default. Each CCP is required to apply the same daily risk management methodology it applies to its interoperable CCP positions as it does to its member positions. However, CCPs do not contribute to each other's default funds.

Therefore, interoperating CCPs call margin from each other on a daily basis (end-of-day and intra-day where necessary). CCPs are required to fund these calls by taking specific additional collateral from their members. LCH collects the additional collateral required by applying a multiplier to the end-of-day initial margin requirements. The multiplier is recalculated each day based on the actual positions held against each interoperating CCP and is available in the ERA parameter files on the LCH website. Where there is a shortfall between the additional collateral collected and the actual calls made by the interoperating CCP, then a further call is made on members in the morning, again on a pro rata basis to the previous end-of-day initial margin. Where intra-day calls are made by an interoperating CCP, then further additional intra-day calls may be made on members.

If a CCP defaults, the collateral provided by its members to meet inter-CCP calls is at risk and, as such, collateral may be required to cover losses arising from the close out of the open positions by the non-defaulting CCP.

Each CCP holds collateral to cover inter-CCP risk at Clearstream Banking Luxembourg.

A CCP can treat another CCP as a defaulter in a limited but appropriate range of circumstances (including, most importantly, insolvency) and manage the defaulting CCP's open balance contract positions with it in accordance with its own default rules. As interoperating CCPs do not contribute to the LCH default fund, the members' mutualised risk in the default fund is reached sooner than for a member default.

Each CCP retains the ability under its own published rules to reject trades which do not meet its eligibility criteria. Therefore, where either CCP rejects a trade, each member leg of the transaction and the corresponding balance contract between the parties falls away to ensure that each CCP retains a balanced position.

Each CCP can suspend its obligation to continue clearing new trades and becoming party to new balance contracts with another CCP in a defined range of emergency and other situations to manage its ongoing risk exposure.

Settlement management

Settlement netting

Net, aggregate and gross settlement options are available.

Netting is the sum of buys and sells together. Aggregation is the sum of buys and the separate sum of sells. Aggregation ensures that settlement is always delivery versus payment.

Netting and aggregation options are offered on a trade date net (TDN) basis.

Trades having the following in common will have the equity quantity and settlement amount netted and/or aggregated:

- Contractual terms:
 - Equity (ISIN);
 - Primary market (optional – on request by a member);⁹
 - Settlement currency; and
 - Intended settlement date (ISD)
- Settlement accounts, for both parties; and
- Trade & clearing parameters:
 - Trade date;
 - Settlement Firm;
 - Dealing capacity (principal or agent);
 - Clearing member account; and
 - Trade source

There are nine possible outcomes for a settlement participant from netting.

Outcome	Description	Stock	Cash
1	Delivery versus payment (DVP)	Deliver	Receive
2	Receipt versus payment (RVP)	Receive	Deliver
3	Delivery free of payment (DFP)	Deliver	Net to 0

⁹ This facility is available for members where separate netting of dual listed ISINs is required. Generally, this happens naturally as the CSD for each line will be different. This facility ensures these lines of the same ISIN and currency are netted separately.

Outcome	Description	Stock	Cash
4	Receipt free of payment (RFP)	Receive	Net to 0
5	Cash payment (CPO)	Net to 0	Deliver
6	Cash receipt (CRO)	Net to 0	Receive
7	Delivery with payment (DWP)	Deliver	Deliver
8	Receipt with payment (RWP)	Receive	Receive
9	Null settlement	Net to 0	Net to 0

Outcomes 1-2 are 'standard nets', involving the delivery of stock against payment. Outcomes 3-9 are considered to be 'non-standard nets'. Outcomes 5-8 involve a cash payment not against a stock delivery. Where such nets arise from settlements due in CREST, SIX SIS, Iberclear, Euroclear Bank, Clearstream Banking Luxembourg or Depository Trust Company the settlement of the cash payment will take place in the CSD. In all other cases, the cash payments will be settled by standard interbank transfer, hence outside the CSD. For settlement participants who are unable to support full netting or prefer not to use it, three aggregation options are provided.

The following table shows the nine possible outcomes from settlement netting and whether netting (N) or aggregation (A) would be performed in each case for each of the following five netting/aggregation options.

- (1) Net in all cases.
- (2) Aggregate in all cases.
- (3) Aggregate all non-standard nets.
- (4) Aggregate only non-standard nets involving cash payments.
- (5) Aggregate only non-standard nets involving with payment deliveries.

#	Description	Stock	Cash	(1)	(2)	(3)	(4)	(5)
1	Delivery versus payment (DVP)	Deliver	Receive	N	A	N	N	N
2	Receipt versus payment (RVP)	Receive	Deliver	N	A	N	N	N
3	Delivery free of payment (DFP)	Deliver	Net to 0	N	A	A	N	N
4	Receipt free of payment (RFP)	Receive	Net to 0	N	A	A	N	N
5	Cash payment (CPO)	Net to 0	Deliver	N	A	A	A	N
6	Cash receipt (CRO)	Net to 0	Receive	N	A	A	A	N
7	Delivery with payment (DWP)	Deliver	Deliver	N	A	A	A	A
8	Receipt with payment (RWP)	Receive	Receive	N	A	A	A	A
9	Null settlement	Net to 0	Net to 0	N	A	A	N	N

Flexibility is provided in that the netting/aggregation option can be chosen separately for each combination of settlement firm, dealing capacity (principal or agent), CSD and trade source.

Cash payments due to settle via interbank transfer are further netted¹⁰ overnight prior to settlement date (ISD-1) on a per currency basis. That is, there will be no more than one cash payment required between a Settlement Firm cash account and LCH, per currency per day.

The exception is that cash payments arising from corporate events are excluded from this process. Generally, these are settled automatically within the relevant CSD, but where this is not the case the payments will continue to be settled separately.

Gross settlement is supported for any trades settling in CREST, SIX SIS, Euroclear Bank and Clearstream Banking Luxembourg.

Settlement instruction

Several settlement instruction methods are used depending on the (I)CSDs¹¹ and markets.

Euroclear UK & International (CREST)

LCH will instruct all settlements into CREST as a central sponsor. Members can use the CREST Direct Input service to choose how they want their settlements to be affected, either using the central sponsor instruction details or instructing their own settlements. Settlement is made with an LCH CCP participant in CREST.

CREST CCP services are available to members.

SIX SIS

LCH will instruct all settlements in SIX SIS on behalf of members using power of attorney arrangements.

Euroclear Bank

LCH will instruct all settlements in Euroclear Bank on behalf of members using power of attorney arrangements.

Clearstream Banking Luxembourg

LCH will instruct all settlements in Clearstream Banking Luxembourg on behalf of members using power of attorney arrangements.

Iberclear

LCH will instruct all settlements in Iberclear on behalf of members using power of attorney arrangements, as required by Spanish law.

Depository Trust Company

LCH will instruct its own settlements. Members, or their settlement agent, must match the LCH instructions.

¹⁰ Netting is applied across cash positions arising from principal and agency trades.

¹¹ Members or their settlement agents should consult with the CSDs, as necessary, on the services they provide, particularly regarding matching and settlement status updates.

The option is provided to have the matching settlement instruction generated by LCH EquityClear and sent over SWIFT to the member or their settlement agent, who can then forward it to the CSD without having to prepare the instruction themselves. This is similar to LCH instructing settlement in the CSD on behalf of a member using power of attorney arrangements.

The top four net outcomes in the list above will be instructed as versus payment and free of payment instructions respectively. The cash only outcomes will be instructed as versus payment instructions with zero stock quantity. In DTC these need to be instructed as Securities Payment Orders with a reason code of '6' for 'Buy In – Pair Off'. The delivery/receipt with payment outcomes will be instructed as separate free of payment instructions and versus payment instructions with zero stock quantity. The 'null net', no cash payment or stock delivery due, will not be instructed for settlement.

Other CSDs (Pan-European)

Except as specifically described above, the following process will apply.

LCH will instruct its own settlements into the appropriate CSD. Members, or their settlement agent, must match the LCH instructions.

The option is provided to have the matching settlement instruction generated by LCH EquityClear and sent over SWIFT to the member or their settlement agent, who can then forward it to the CSD without having to prepare the instruction themselves. This is similar to LCH instructing settlement in the CSD on behalf of a member using power of attorney arrangements.

The top six net outcomes in the list above will be instructed as versus payment, free of payment and funds transfer instructions respectively. The delivery/receipt with payment outcomes will be instructed as separate free of payment and funds transfer instructions. The 'null net', no cash payment or stock delivery due, will not be instructed for settlement.

The cash only payments will be made outside CSDs using standard interbank payments.

Settlement location

LCH EquityClear will determine a default CSD for each trade received based on the trade details. Usually this is the issuer CSD of the equity. However, where an equity can be settled in multiple CSDs the default CSD may vary as follows.

- Trades in the same equity but different settlement currencies may have different default CSDs.
For example:
 - Royal Dutch Shell in pounds sterling (GBP) in Euroclear UK&I; and
 - Royal Dutch Shell in euro (EUR) in Euroclear Netherlands.
- Trades in the same equity and settlement currency may have different default CSDs based on the trade source.

- Trades from the same trade source (e.g. an MTF) in the same equity and settlement currency may have different default CSDs in the case where equity lines listed on more than one primary market are being mirrored. For example:
 - ST Microelectronics, Euronext Paris line, in Euroclear France; and
 - ST Microelectronics, Borsa Italiana line, in Monte Titoli.

Euroclear Bank is the default ICSD.

A member can choose an alternative CSD to the default CSD in the following cases:

- for ICSD settlement, a member can choose Clearstream Banking Luxembourg instead of Euroclear Bank; and
- for T2S settlement, a member can choose a valid T2S investor CSD.

Settlement details

Members specify the following settlement details:

- Alternative CSD to the default, where applicable;
- Settlement agent (e.g. CREST settlement participant, SIS business partner);
- Securities settlement account (e.g. CREST member account), where applicable; and
- Settlement netting preference (i.e. gross, net or aggregation, as applicable).

The settlement details are specified for each combination of:

- Trade source;
- Settlement Firm;
- Dealing capacity; and
- Default CSD.

Splitting (partialling)

As a CCP, LCH's position is flat. It is highly beneficial to carry no overnight holdings thus avoiding overnight credit costs and potential additional corporate action processing costs, both of which are ultimately recovered through fees.

Where a stock balance does not fulfil outstanding deliveries LCH will endeavour to split a delivery to minimise overnight security positions in its accounts.

Some CSDs offer CCPs an auto-splitting service and LCH utilises these services where available and suitable to its needs.

Where a suitable auto-splitting service is not available, LCH will instruct its own splits where allowed by a CSD. This may be achieved by a cancellation of the original instruction and instruction of new transactions reflecting the split.

If counterparty confirmation is required, LCH Operations will contact the counterparty to request this.

A counterparty may split their delivery to LCH where the CSD provides appropriate facilities, but only where LCH is not required to confirm this.

Shaping

Shaping is the splitting of settlements prior to instruction into a CSD into shapes of limited stock quantity or settlement value. Shaping reduces the benefits of netting and it will only be used where necessary.

Where splitting is not supported by a CSD, LCH may shape instructions to limit the potential size of overnight stock balances and to ensure it maximises liquidity in the market.

Some settlement locations specify a limit and settlements are shaped accordingly. For example, Swiss Interbank Clearing (SIC) has a specified CHF100M limit per transaction.

Corporate Actions

Corporate action processing for the purposes of settlement is generally carried out automatically by the CSD. LCH EquityClear monitors the resulting settlement confirmations and closes the positions accordingly.

Where CSDs do not generate the appropriate settlement obligations or delete unsettled transactions after a defined period, LCH EquityClear has the capability to instruct the required settlements.

Acceptance of elections on optional events is market dependent. Details are provided in the LCH EquityClear rules.

Fails management through buying-in

The 'buying-in' process is used to achieve delivery of ongoing settlement fails. It is initiated by LCH.

In the event that buying-in of the stock cannot be achieved, LCH will cash settle the relevant outstanding deliveries in order to provide settlement finality.

Full details of the buying-in procedures can be found in section 2D of the LCH procedures on our website.

Administration fee

LCH will charge an administration fee for processing a buy-in. The administration fee will appear as an item on the associated member's monthly clearing invoice.

Dealing fees/commissions

Dealing charges, expenses and commissions that are applicable will be included in the consideration of the settlement transaction matched with the buying-in agent and the liable party.

Fail fines

LCH charges fines for settlement fails.

LCH reports, collects and distributes CSDR fails penalties as required by the regulation.

CSDs may have a fail fines regime in place, separate from CSDR cash penalties. Where LCH is charged for its fails, these charges will be passed through to failing members.

CSDR Cash Penalties

CSDR requires CSDs to calculate cash penalties on fails. The CSDs are required to collect the penalties from and distribute them to their participants, except where a participant to a fail is a CCP. In this case the CCP is required to collect the penalties from and distribute them to their members. The CSDs will identify on the penalty calculations they report to their participants whether each penalty is to be collected or distributed by a CCP or not. The following applies to CSDR penalties for which LCH is responsible for their collection and distribution.

SME growth markets

Trades executed on SME growth markets attract lower penalties than trades executed elsewhere. By default, LCH will separately net trades per SME growth market using the MIC recognised by the CSDs.

Daily process

LCH will match and reconcile each penalty calculation against its record of fails to ensure reported penalties are recognised as valid and that no expected penalty calculations are missing. The matching process also allows EquityClear to identify the member and Settlement Firm responsible for each penalty and hence report, collect and distribute the penalties appropriately.

At the end of each day EquityClear will provide each member with a single report giving all the cash penalty calculation records, including separately both new penalties and corrections, for all CSDs. It will contain the necessary data extracted from the CSD penalty reports, generally from MT537 messages, along with EquityClear enriched data such as the Member Account and Settlement Firm ID. This should allow GCMs, in particular those not involved in the settlement of the fails and hence not receiving the penalty calculations directly from the CSDs, to track and manage the liabilities of their clients through each penalty month.

Monthly process

EquityClear will generally follow the month end penalty processing timetable of the CSDs.

On the 14th 'Penalties Business Day'¹² of each month EquityClear will provide each member with a single report giving all the cash penalty calculation records for the previous penalty month but including only the final corrected records. The sum of these records will match the amounts to be collected and distributed, which will be in the penalty currency. This report will also allow reconciliation and dispute resolution with members' clients as necessary.

¹² The Penalties Business Day (PBD) is as defined by ECSDA in their CSDR Penalties Framework document.

Penalty collection and distribution will go through the usual invoicing process. CSDR cash penalties will be identified as separate line items on the invoice, per penalty currency per Settlement Firm. Members must therefore have PPS accounts in all relevant penalty currencies to facilitate payments.

LCH will endeavour to align the value date for payments with the CSDs, being the 18th 'Penalties Business Day' of the month.

Appeals

LCH requests that a member or their client who wishes to appeal the CSD calculated penalty amount or attribution does so directly to the relevant CSD via the CSD participant. This will be much more efficient than using LCH as an intermediary.

However, if the member or their client is comfortable with the CSD reported calculation but has an issue with how LCH has reported it then this should be raised by the member with LCH.

Risk management

In theory, LCH should be net flat to penalties. That is, for fails from LCH to members, and hence penalty liabilities on LCH, there should be an equal amount of fails from members to LCH, and hence corresponding penalties due to LCH to cover its liabilities. However, members can go into default and therefore potentially not pay their liabilities to LCH. LCH will always pay penalties due to its members, irrespective of whether there is a default of another member, as members would expect, this being a primary function of a CCP. Therefore, LCH will calculate and collect margin to cover the future penalty liability. This additional CSDR cash penalty margin will be shown as a separate line item on member report 'EREP0032 – Margin – High Level Additional Margin Summary'.

CCP excess penalties

In practice there are scenarios in which LCH is not flat to penalties and incurs a loss, where neither LCH nor its members are at fault (e.g. where a CSD settles late deliveries to LCH but ends its process before delivering those securities back out to receiving members)¹³. LCH may recover such losses as a specific add-on charge to members.

¹³ Other scenarios are described in the EACH CSDR Settlement Discipline Framework.

Tariff

The LCH EquityClear tariff rewards additional volume on a per member basis; the higher a member's volume the lower their average fee. Details can be found on our website.

Fees are collected monthly in arrears from members using the PPS system.

Member reporting

Real time confirmations

Members have the option to receive real time trade confirmations. The confirmations will be of trades LCH has validated and registered for clearing.

The trade confirmations will be provided using industry recognised message standards.

- ISO 15022 Trade Confirmations (MT518).
- FIX Trade Capture Report (AE).

Messages can be received over SWIFT or over the managed network service provided by BTRadianz.

Reports

EquityClear reports

LCH EquityClear provides a full suite of reports for its clearing members, including margin reports, trade reports, settlement netting reports and fees volume reports. These are detailed in the EquityClear Member Reports document.

Treasury reports

A suite of collateral management reports, or banking reports as they are otherwise known, is produced for members across all their LCH business.

Fee invoices

Clearing fees and settlement charges are invoiced monthly on separate invoices. The invoices are posted to the member reporting website.

Connectivity

Members can connect to LCH via the following:

- Managed network service; or
- Internet link.

Abbreviations

CCP	Central Counterparty
CSD	Central Securities Depository
EMIR	EU EMIR and UK EMIR
ERA	Equity Risk Analysis
EU	European Union
EUR	Euro
GBP	Pounds Sterling (£)
GCM	General Clearing Member
HMRC	Her Majesty's Revenue & Customs
ICM	Individual Clearing Member
ICSD	International Central Securities Depository
ISD	Intended Settlement Date
ISIN	International Security Identification Number
LCH	LCH Ltd
MiFIR	EU MiFIR and UK MiFIR
MTF	Multilateral Trading Facility
NCP	Non Clearing Participant
OTC	Over-the-counter
OTF	Organised Trading Facility
PPS	LCH Protected Payments System
RIE	Recognised Investment Exchange
RM	Regulated Market

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