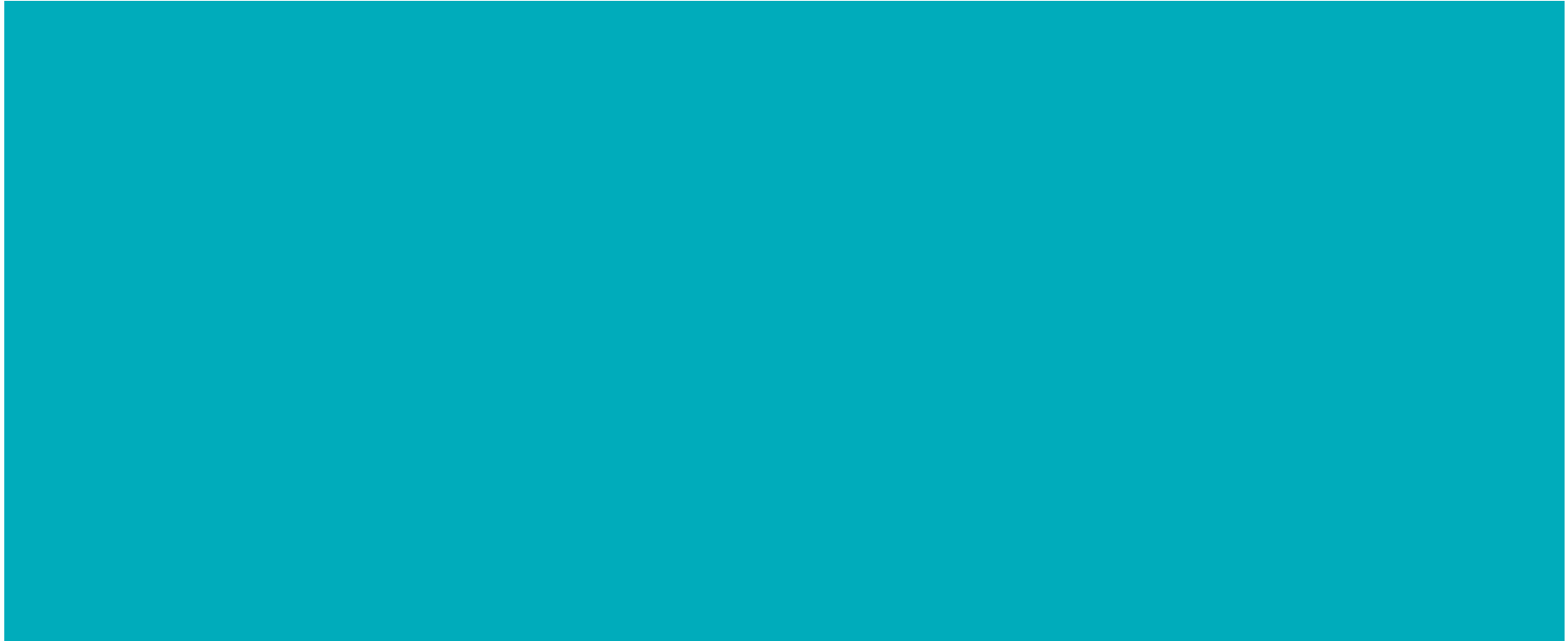


Transition to SOFR discounting in SwapClear



Transition to SOFR discounting in SwapClear – Contents

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SOFR discounting
Overall process design

Summary of LCH's planned approach

In support of the ARRC Paced Transition Plan, LCH plans to transition to SOFR discounting for USD products as follows:

1. LCH plans to change the discounting and PAI/PAA^(*) on all SwapClear USD-discounted products (including inflation, MXN and non-deliverable currencies^(**)) from Fed-Funds to SOFR;
2. LCH plans to apply cash and swap compensation to all accounts with open USD-discounted positions (including inflation, MXN and non-deliverable currencies^(**)) on the conversion date;
3. Client accounts will be able to elect for cash-only compensation by notifying LCH via their Clearing Broker;
4. A cash settlement (auction) process will be used to close out the unwanted compensating swaps and to provide a reference for cash compensation calculations across the whole service;
5. LCH is targeting a conversion date of 16th October 2020.

The above process has been designed to meet the industry-wide objective to transition the cleared swap market to SOFR without compromising market stability or causing unnecessary disruption.

The design is intended to be resilient in a wide range of scenarios, operationally tractable yet with a reasonable degree of flexibility for customers with specific needs.

Key design decisions have been subject to extensive consultation with our members and clients and have been communicated broadly to the market.

(*) Price Alignment Interest/Price Alignment Amount

(**) The eight non-deliverable currencies are KRW, CNY, INR, BRL, COP, CLP, THB, TWD

Proposed timeline

Date	Step
Saturday 6 th June 2020	Full operational test of end-to-end processes.
Friday 31 st July 2020	LCH to finalise and publish list auction participants.
Friday 31 st July 2020	LCH to publish auction proceeds cap array.
Friday 4 th Sep 2020	Notification to LCH of elections for clients opting out of compensating swaps (and into LCH close-out process).
Monday 7 th Sep 2020	LCH to publish indicative size of portfolio.
Wednesday 14 th Oct 2020	Calculation of final compensating swap notionals based on EOD portfolio.
Friday 16 th Oct 2020	Auction event. Calculation of cash compensation amounts based on EOD portfolio.
Saturday 17 th Oct 2020	Booking of cash compensation amounts, compensation swaps and CSP proceeds.
Monday 19 th Oct 2020	All new trades cleared at start of day. Implementation of SOFR discounting at opening. Incorporation of cash compensation amounts into ITD margin processing.
Tuesday 20 th Oct 2020	Settlement of compensation amounts and auction proceeds. New trades reported to trade repository.

Value compensation via cash payments

Purpose	<p>The discounting change will give rise to gains and losses in respect of the valuation of USD-discounted portfolios. To address this, LCH plans to support cash compensation by introducing offsetting fees payable to/from the relevant accounts at the point of conversion.</p>
Methodology	<p>Cash compensation amounts will be calculated using the mid prices from the cash settlement auction to derive the SOFR curve (as a spread to the existing USD Fed Funds curve). All USD discounted future cash flows (as calibrated under the Fed Funds discounting regime) are held constant and the compensation amount is calculated as the differential between the present value of these cash flows under the Fed Funds discount regime versus the SOFR discount regime:</p> $\text{Cash compensation amount} = \sum_i \text{NetCashflow}_i \times [DF_i^{\text{Fed Funds}} - DF_i^{\text{SOFR}}] \cdot \frac{1}{DF_{\text{Payment Date}}^{\text{SOFR}}}$ <p>Non-deliverable swaps will be subject to a similar calculation and the relevant compensating amount will be combined with the other US dollar compensation amounts into a single payment.</p> <p>Any Mexican Peso swaps positions will be subject to an FX-adjusted compensation calculation for which payment will be made in Mexican Pesos separately.</p>
Booking	<p>LCH plans to book the compensating amount on <u>a new 1 USD Fed Funds notional swap</u> (T+2 settlement) for all USD and non-deliverable products in every Member and Client clearing account (visible as a new trade as per existing reporting specifications).</p> <p>For MXN TIIE swaps LCH plans to book the compensating amount on <u>a new 1 MXN notional swap</u> (T+2 settlement) for every Member and Client account (visible as a new trade as per existing reporting specifications).</p> <p>Booking will take place on Saturday October 17th 2020. Trade level breakdown will be available to ensure correct attribution is possible for any users wishing to break the fee down to a detailed level.</p>

Risk compensation via compensating swaps

Purpose	The transition will give rise to a change in discounting risk from Fed Funds to SOFR. The compensating swaps are intended to neutralise the change in discounting risk and provide protection against any price movements during or after the compensation process.
Methodology	<p>LCH will evaluate the change in discounting risk as a result of the switch from Fed-Funds to SOFR discounting and calculate the overall SOFR risk ladder under both regimes. The difference between risk ladders is the change in discounting risk which LCH plans to compensate for.</p> <p>The required compensating risk will be aggregated into compensating swap tenors: 2Y, 5Y, 10Y, 15Y, 20 and 30Y. Any bucket between these main pillar points will be allocated to the nearest two pillars in proportion to the time difference between the relevant pillar points (e.g. 12Y risk will be allocated 60% to 10Y and 40% to 15Y.)</p> <p>The required notional size for each compensating swap is calculated to match the required risk sensitivity (i.e. the delta) in each of the compensating swap tenors.</p>
Booking	<p>Calculations will be performed at the account level for any account with USD discounting risk with reference to the cleared trade population as at close of business of Wednesday 15th October 2020.</p> <p>LCH plans to book the compensating swaps as a pair of outright swaps consisting of:</p> <ul style="list-style-type: none"> i) Receive SOFR, pay fixed (inclusive of spread); and ii) Receive fixed, pay Fed Funds (or vice versa). <p>The fixed coupon will be determined based on the standard LCH Fed Funds outright curve at COB 16th October 2020.</p> <p>Compensating swap notional will be subject to a rounding convention with small positions rounded to zero (meaning no compensating swap will be booked).</p> <p>On 17th October 2020, LCH will book the net compensating swaps (for T+2 settlement), each with its maturity-specific mid spread applied to the SOFR coupon, into each account. LCH will be the counterparty to these trades.</p>

SOFR discounting

Compensating swap close-out (auction) process

Communicating opt out decisions

Process for client elections

- Client accounts will be able to opt out of the risk compensating swaps. All swaps that are opted out of by clients will be subject to a close-out process using an auction, to be run by LCH, described in this section.
 - Given their direct relationship with the client, it is the responsibility of Clearing Brokers to notify LCH which of their Client accounts have elected for cash only compensation.
 - As part of the decision-making process, clearing brokers will be required to provide the LCH risk notice to each client, outlining the associated risks.
 - In the absence of instruction or otherwise, LCH will provide both cash (value) and swap (risk) compensation to each Client account.
- Clearing brokers should send notifications of client opt-outs securely via the LCH portal **by 4th September 2020**. Brokers will receive an email confirmation in return.
- Opt-out decisions are made at the account level. Clients with multiple accounts may choose which accounts they intend to opt out. Clients may not opt in or out of specific tenors.
 - There will be **materiality thresholds** whereby, below certain sizes (defined earlier), an account will be automatically provided cash only compensation.
 - For the avoidance of doubt, opting out clients will still pay (or receive) cash compensation for the value difference due to the discounting change

Important considerations for opt out decisions

Whilst clients should strongly consider swap compensation, LCH recognizes that there is a diverse set of users with different needs. Some clients may be unable or unwilling to accept swap compensation, and we have therefore designed a process to accommodate this.

However, it is noted that the compensating swaps are designed to

- (i) hedge against any price movements during or after the compensation process; and
- (ii) avoid exposure to any costs associated with the auction itself.

By electing to take cash-only compensation, a client account would not be able to benefit from these protections.

Consequences of opting out of compensating swaps

Where a client decides to elect out of the compensating swaps, then the swaps that it would have received but for the election will be liquidated through an auction mechanism, run by LCH. This is likely to result in a cash payment from the client's account, representing a proportionate share of any auction costs (being the bid-mid spread).

If there are insufficient bids for the opted out portfolio within a predetermined range (the 'auction proceeds cap'), opted out clients will, notwithstanding their election to receive cash only, still receive part or all of their compensating swap allocation. Clients should discuss this eventuality with their clearing broker and/or execution counterparty(ies).

Clients should discuss their options with their clearing member and take external legal, financial or other professional advice, as appropriate.

Please note that the inclusion of a compensation mechanism as part of LCH's transition to SOFR discounting was a central element of consultation feedback during the design phase of the LCH process.

Auction participation

Participation

Members who are large, active participants in the USD swaps market will be required to bid in the auction. LCH has defined the threshold for requiring auction participation as those member groups having cleared at least \$1 trillion notional of USD-denominated swaps at LCH in Q1 2020. There are 16 member groups above this threshold.

All auction participants will be expected to demonstrate connectivity to LCH's auction platform which is based on the existing LCH Portal.

Auction participants are expected to be US primary dealers with relevant operational experience and subject to supervisory oversight. Clients wishing to provide liquidity into the auction should contact these banks who can intermediate.

Calculating the opted out portfolio

For the client accounts opting out, the compensating swap positions will be aggregated and netted into six single compensating swaps across all such client portfolio, to become the auction portfolio.

LCH will calculate an indicative size of the auction portfolio and publish to auction participants on 7th September 2020. Final sizes will be confirmed on 15th October 2020.

Bidding logistics

Auctions will be held during the morning of 16th October 2020 (in New York business hours). The bidding for each of the six compensating swaps will be separate (i.e. LCH will not support bids for packages of trades).

For each auction, LCH will show the full size of the position being auctioned and will ask for tradeable quotes from the auction participants.

Bids will be submitted via the LCH auction platform.

Auction participants will access the auction platform via a web portal which displays a schedule of auctions for the day.

Auction participants will be permitted to provide prices in two formats: an 'order book', or an 'all or nothing' price. Auction participants may supply quotes in one or both formats, as below. The minimum requirement is to bid for 10% of each auction swap.

In the order book approach, auction participants provide differentiated pricing for a defined proportion of the compensating swap being offered. With the all or nothing bid, an auction participant shows a price which is valid if and only if they are allocated the full size.

Example bid

<i>Bank</i>	<i>BANK1</i>
-------------	--------------

<i>Order Book</i>		
	<i>BID</i>	<i>OFFER</i>
Up to 10%	X bp	X bp
10-25%	X bp	X bp
25-50%	X bp	X bp
50-75%	X bp	X bp
75-100%	X bp	X bp

<i>All Or Nothing</i>		
	<i>BID</i>	<i>OFFER</i>
100% Only	X bp	X bp

Auction cost allocation

Determining the auction winner(s)

Initially, all bids in the order book format will be aggregated and arranged in descending order (or offers in ascending order, depending on the direction of the swap being auctioned). LCH will work down this list until enough bids have been accumulated to cover the full size of the auction. The last bid (or offer) is then the market clearing price, i.e. the best price at which there are enough partial bids to cover the full auction size in aggregate.

The market clearing price from the order book bids is then compared with the best all or nothing bid. If there is a better all or nothing bid, that bidder will be the sole auction winner. Otherwise, the order book bidders will be declared the winners and the auction swap will be allocated to them. Note that all winners will be allocated the swap using the same market clearing price.

Note that the swaps themselves will be 'at market', i.e. the rates used will be the auction mid price, not the market clearing price paid by the auction winners.

Allocation of swaps to the auction winners

All bidders who bid higher than the market clearing price will be allocated the full share that they bid for. Bidders who bid the market clearing price will be allocated a share of the remainder in proportion to the size of bid they made at that level.

Calculating the auction proceeds

Auction winners will be provided with their compensating swaps 'at market' with reference to the auction mid as the market level. This means that the fixed spread on the SOFR leg of their trade will be equal to the auction mid price for the relevant tenor.

The difference between the *auction mid price* (in basis point terms) and the price agreed with the auction winner(s) *market clearing price* (the best bid or combination of best bids, also in basis point terms) multiplied by the size of the auction position (in dv01 terms) can therefore be thought of as the *auction proceeds*. If the market clearing price is lower than the auction mid, this results in the need for a cash payment to the auction winner from the opting out client accounts.

Allocating to individual accounts

For each individual auction, the proceeds are allocated to client accounts in proportion to the notional size of compensating swap that they have opted out of (irrespective of long/short):

$$ClientAllocation_i = -AuctionProceeds \cdot \frac{|ClientNotional_i|}{\sum_{Optout} |TotalNotional|}$$

The booking of the auction proceeds will be via the same mechanism used for cash compensation (i.e. additional swaps with attached fees payable).

Auction proceeds cap and the partial fill scenario

In order to prevent the opting out client accounts from incurring unquantifiable costs in the auction process, LCH plans to **cap the auction proceeds at a predetermined number of basis points**.

If the auction fails to produce sufficient bids to cover the entire auction size within this level, this will result in a *partial fill scenario*. If there are no bids within the auction proceeds cap, all clients will receive their full allocation of compensating swaps.

In the partial fill scenario, each opting out account will be allocated both cash and swaps. The cash represents their share of the auction proceeds payable to the successful bidders that were within the agreed range.

The swaps will represent their share of the compensating swap notional for which there were insufficient bids (bids outside the range or no bids at all). Both calculations will be performed as a percentage of notional, as per the auction proceeds calculations above.

If clients subsequently require an unwind of their remaining compensating swap positions it will be their own responsibility to achieve this in the open market with the help of their clearing broker (as the intermediating counterparty).

We are in dialogue with the clearing brokers regarding their roles and responsibilities in this process. Note that unwinding the compensating swaps in the open market will clearly be an option for any clients who may prefer not to put their compensating swaps into the auction process.

LCH does not plan to hold any further rounds of LCH-organised auctions after the initial scheduled round, even in the partial or no fill scenarios. LCH will confirm the level of the auction proceeds cap closer to the time that client elections need to be made.

Client checklist

Client checklist

Estimating the size of key inputs	<ul style="list-style-type: none"> ➤ Use the SMART tool to review indicative valuation changes, cash compensation and discounting risk changes. ➤ Review allocations to individual trades/portfolios. Consider how you would reallocate compensation down to sub-portfolios if required (LCH payments will be made at the clearing account level). ➤ Visit the LCH Portal to review the indicative hedge notionals for the compensating swaps.
Operational process flows	<ul style="list-style-type: none"> ➤ Ensure you are familiar with the proposed booking for compensating cash payments and compensating swaps. ➤ Review expected timings of cash flows. Consider what reconciliations may be required. ➤ Review your needs with respect to trade messaging. LCH will communicate new cleared trades via Clearlink, but will not message trades to MarkitWire unless clients elect it (via ATSS Synchronisation). ➤ Discuss any questions on booking or processes with your clearing broker, and LCH if appropriate. LCH is running a test weekend on 30th May and will make available relevant data from these tests to members and clients.
Compensating swap elections	<ul style="list-style-type: none"> ➤ Consider benefits of swap compensation. Compensating swaps are designed to hedge against any price movements during or after the discounting conversion and to avoid exposure to any costs associated with the auction process. ➤ Review LCH technical specification for auction process. ➤ Clients should discuss their options with their clearing member and take external legal, financial or other professional advice, as appropriate. ➤ If electing to opt out of compensating swaps (and into the LCH cash settlement auction process), arrange for relevant <u>clearing broker(s) to inform LCH by 4th September 2020</u>.
Other resources	<ul style="list-style-type: none"> ➤ A detailed technical description of the auction process is available [here] ➤ The LCH benchmark reform website can be found [here]

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