



Indexed Long-Term Repo (ILTR): example of the auction process

The following example illustrates the process underlying the Bank’s ILTR operations.

Before the operation

The Bank internally specifies its preferences for supplying funds across the three collateral sets and in aggregate. These preferences are expressed by a set of ‘supply curves’ which the Bank fixes in advance of the auction but are not published.

The Bank announces the operation a week in advance. The amount of funds eventually allocated is variable, but the announcement includes the minimum quantity on offer. Suppose this is £1,000mn for the purposes of this example.

During the operation

Participants submit bids on one or more collateral sets. There are currently no restrictions on the number of bids, quantity of funds requested or total amount allocated to any single participant.

The interest rate charged on lending in the ILTR is indexed to Bank Rate, so bids are made in terms of spreads to that rate. This means participants do not have to take a view on the future path of interest rates.

The ILTR auction uses a ‘uniform price’ format, in which a single ‘clearing spread’ for each collateral set is determined within the auction. Bids above these spreads will be allocated in full, charged at the relevant clearing spread rather than their individual bid spreads.

This format means that all successful bidders will pay less than or equal to their bid spread, so participants are incentivised to enter bids which reflect the maximum spread they are willing to pay. And as all successful bidders on each collateral set pay the same spread, participants should have little incentive to alter their bids on the basis of assumptions about other participants’ likely behaviour, or the Bank’s supply preferences.

Table 1 shows an example set of bids the Bank might receive in the auction. All bid sizes are assumed to be £100mn for simplicity.

Table 1: Bids received

Level A Collateral			Level B Collateral			Level C Collateral		
<i>Bid #</i>	<i>Bid spread (bps)</i>	<i>Nominal (£mns)</i>	<i>Bid #</i>	<i>Bid spread (bps)</i>	<i>Nominal (£mns)</i>	<i>Bid #</i>	<i>Bid spread (bps)</i>	<i>Nominal (£mns)</i>
A1	2	100	B1	10	100	C1	25	100
A2	1	100	B2	8	100	C2	20	100
A3	0	100	B3	5	100	C3	18	100
A4	0	100	B4	5	100	C4	15	100
A5	0	100	B5	5	100	C5	15	100
A6	0	100	B6	5	100	C6	15	100

End of the operation

After the auction closes, the Bank compares the market demand in the auction (represented by the pattern of bids received) to its pre-determined supply preferences. An optimisation method is used to determine the clearing spreads and quantities which balance supply and demand across the three collateral sets. This will generate the result which best satisfies both the Bank and its counterparties.

Suppose the clearing spreads and quantities generated in the example above were as follows:¹

- Level A – 0bps, £450mn
- Level B – 6bps, £200mn
- Level C – 15bps, £450mn

Bids at spreads above the clearing spreads on each collateral set are allocated in full, while those below the clearing spreads are unallocated. Bids at spreads equal to the clearing spread on any collateral set may be scaled back, i.e. partially allocated, receiving 0%-100% (inclusive) of their bid amount, depending on the quantity available.

For Level A in our example there are two bids of £100mn above the clearing spread of 0bp, which are allocated in full. There are bids totalling £400mn at the clearing spread of 0bps, which will share the remaining £250mn (i.e. £450mn - 2x£100mn) in proportion to their bid amount. In this case the bids will each receive 62.5% ($£250mn \div £400mn \times 100\%$) of their bid amount, so £62.5mn each (since all three are for £100mn).

The final allocation for our example is illustrated in Table 2, where fully allocated bids are highlighted in green and partially allocated bids in amber.

Table 2: Allocations

Level A Collateral Clearing spread: 0bps			Level B Collateral Clearing spread: 6bps			Level C Collateral Clearing spread: 15bps		
Bid #	Bid spread (bps)	Amount allocated (£mns)	Bid #	Bid spread (bps)	Amount allocated (£mns)	Bid #	Bid spread (bps)	Amount allocated (£mns)
A1	2	100	B1	10	100	C1	25	100
A2	1	100	B2	8	100	C2	20	100
A3	0	62.5	B3	5	0	C3	18	100
A4	0	62.5	B4	5	0	C4	15	50
A5	0	62.5	B5	5	0	C5	15	50
A6	0	62.5	B6	5	0	C6	15	50

As noted earlier, all successful bidders in the auction pay the relevant clearing spread rather than their bid spread. For example, all bidders on Level C pay 15bps so in the case of bid C1 the final price paid is 10bps lower than its bid spread of 25bps.

Flexibility within the Bank's supply preferences

ILTR auctions are designed to be flexible. Two automatic responses are built into each operation.

First, a greater quantity of funds is lent against a particular collateral set as the clearing spread for that set rises relative to the other sets. For example, suppose all bidders on Level C collateral above doubled their bid amounts and prices, while the bids on the other sets were left unchanged. That would represent a large increase in demand for Level C relative to the other sets. This would push up on the clearing price for Level C and cause the proportional share of funds to rebalance away from the other sets and towards Level C.

Second, a greater total quantity of funds is made available as the pattern of bids observed in the auction suggests greater demand. Again using the example above for reference, suppose that all bidders in the auction doubled their bid spreads and quantities. This large increase in the overall level of demand would clearly push up on the clearing prices across the auction. But to help counter this effect, the aggregate quantity of funds made available by the Bank would automatically increase from the £1,000mn announced initially. This allows the Bank to meet more of the demand to help ease any emerging need for greater liquidity in the system and limit the rise in clearing prices. The maximum potential size of the auction is not published, but will be many multiples of the minimum size.

¹ These results are for illustrative purposes only; they do not necessarily reflect the Bank's actual supply preferences.