



BANK OF ENGLAND

Indexed Long-Term Repo Process Guide

Sterling Monetary Framework

Last updated February 2019

Agenda

1. Background and key features of the Bank's ILTR operation.
2. Scenarios to illustrate how the ILTR auction works
3. Examples of bidding strategies
4. Further information



Background: What is the Bank's ILTR auction?

- The ILTR offers to lend central bank reserves with a six-month maturity.
- Participants may borrow against the full range of eligible collateral across Levels A, B and C.
- The minimum that can be bid for Level A collateral is +0bps above Bank rate, Level B is +5bps and Level C is +15bps.
- Participants bid by submitting a nominal size value and a spread to Bank Rate, against a specific collateral set.
- The rate charged on ILTR lending is indexed to Bank Rate, so participants do not have to take a view on the path of Bank Rate.
- The Bank allocates liquidity across the collateral sets.



Key design features of the ILTR auction

- While the ILTR is our normal tool for routine liquidity provision, the auction is intended to respond to stress. The signal of stress is the price participants are willing to pay for central bank liquidity.
- **As spreads rise, suggesting more stressed conditions, the total size of the auction will increase.**
- **If spreads bid against less liquid collateral rise, the auction will increase the proportion of liquidity allocated to less liquid collateral.**
- With spreads close to their minimum levels:
 - the size of the auction will be limited
 - the proportion allocated to less liquid collateral will be capped
- The ILTR's response to varying demand is determined before the start of any auction. The Bank periodically reviews the appropriateness of this calibration.



Participants bidding in the ILTR auction

- Participants should **bid at the maximum spread they would be willing to pay for funding** against each collateral set.

The auction applies a single clearing spread to each collateral set, so:

- If the auction clears at a spread under your bid, you will **pay that lower spread**.
- If the auction clears above the spread you bid, it suggests that you were not willing to pay that higher spread for funding, **so you will not be allocated**.
- *For those bids that match the clearing spread, they **may be subject to scaling** and be partially allocated. Therefore the higher you bid, the more likely you are to be allocated.*



Participants bidding in the ILTR auction

- The auction is competitive, *so when volumes and/or spreads increase, you may not receive everything you bid for and may be subject to scaling.*
- The predetermined preferences will determine how much funding is supplied at any given price.
- You can **'ladder' your bids**, by inputting multiple bids at different prices. There is no limit on the number of bids you can enter into the auction.



Scenarios to illustrate how the ILTR auction works

- The next slides (8-17) cover possible auction outcomes to demonstrate how the key features of the ILTR auction and bidding process are applied in practice.
- **We caveat that these scenarios are example auctions.**
- The exact outcomes will depend on the overall level of demand in the auction and the pre-determined preferences of how much liquidity is allocated against a collateral set, at a given price.
- Therefore auction outcomes are likely to differ somewhat from these examples.



Scenario 1 – A small amount of bids and minimum spreads

Total bids received:

- £1.5bn on Level A at +0bps
- £1.5bn on Level C at +15bps

Allocation results:

	Level A	Level B	Level C
<i>Maximum allocation at min spreads</i>	5,000mn	2,500mn	2,000mn
Bids received	1,500mn	0mn	1,500mn
Amount allocated	1,500mn	0mn	1,500mn
Clearing spread	0bps	n/a	15bps
Scaling ratio for marginal bids	100%	n/a	100%

- The auction allocated £3bn in total.
- All of the bids received are allocated in full.
- The clearing spreads are the minimum spreads.
- No bids are scaled.



Scenario 2 – Bid sizes increase at the minimum spreads

- The next scenarios demonstrate how the ILTR allocation mechanism reacts when participants increase their bid sizes, but continue to bid at the minimum spreads.



Scenario 2A – Increased bid sizes on Level A

Total bids received:

- £6bn on Level A at +0bps
- £1.5bn on Level C at +15bps

Allocation results:

	Level A	Level B	Level C
Bids received	6,000mn	0mn	1,500mn
Amount allocated	3,500mn	0mn	1,500mn
Clearing spread	0bps	n/a	15bps
Scaling ratio for marginal bids	58%	n/a	100%

- The auction allocated £5bn in total, but still cleared at the minimum spreads
- The auction allocation to Level A increases in response to the increased size of bids.
- Not all of the bids on Level A were allocated, because the operation will only provide £5bn in total at the minimum spreads.



Scenario 2B – Increased bid sizes on Level C

Total bids received:

- £1.5bn on Level A at +0bps
- £6bn on Level C at +15bps

Allocation results:

	Level A	Level B	Level C
Bids received	1,500mn	0mn	6,000mn
Amount allocated	1,500mn	0mn	2,000mn
Clearing spread	0bps	n/a	15bps
Scaling ratio for marginal bids	100%	n/a	33%

- The auction allocated £3.5bn in total, but still cleared at the minimum spreads
- The allocation to Level C increased in response to demand.
- Not all of the bids on Level C were allocated, because the operation will only provide £2bn to Level C at the minimum spreads.
- Each Level C bid was allocated 33%.
- £3bn was reserved to be allocated to Level A and B at the minimum spreads. However, only £1.5bn of bids were received against Level A.



Scenario 3 – Spreads increase

- We now build on Scenario 2, but this time bidders increase their bid prices as well as their bid sizes.
- The auction responds to the increased prices, and begins to increase the total size of the auction, and the total available to each collateral set, in response.



Scenario 3A – Spreads increase on Level C

Total bids received:

- £1.5bn on Level A at +0bps
- £2bn on Level C at +35bps and £4bn on Level C at +30bps

Allocation results:

	Level A	Level B	Level C
Bids received	1,500mn	0mn	6,000mn
Amount allocated	1,500mn	0mn	5,060mn
Clearing spread	0bps	n/a	30bps
Scaling ratio for marginal bids	100%	n/a	77%

- The auction size has increased to £6.56bn in total.
- The allocation to Level C has increased further to £5.06bn as the increased spreads on Level C suggest higher demand for funding.
- The auction reserved some funding for Level A, so not all bids on Level C were allocated.
- The £2bn of Level C bids at +35bps were allocated in full, and paid the clearing spread of +30bps. The other £4bn of bids on Level C were scaled.



Scenario 3B – Spreads also increase on Level A

Total bids received:

- £2bn on Level A at +20bps and £4bn on Level A at +15bps
- £2bn on Level C at +35bps and £4bn on Level C at +30bps

Allocation results:

	Level A	Level B	Level C
Bids received	6,000mn	0mn	6,000mn
Amount allocated	5,520mn	0mn	3,680mn
Clearing spread	15bps	n/a	30bps
Scaling ratio for marginal bids	88%	n/a	42%

- The allocation has increased further to £9.2bn in total.
- The allocation was split between Levels A and C, reflecting an increase in demand on both collateral sets.
- Bidders on Level A at +20bps were allocated in full and paid the clearing spread of +15bps; Level C bidders at +35bps were allocated in full and paid the clearing spread of +30bps.
- Marginal bids on Level A at +15bps and bids on Level C at +30bp were scaled.



Scenario 3C – Spreads increased on Level A and Level C and auction clears above lowest offered spread

Total bids received:

- Level A: £2bn at +20bps and £4bn at +15bps
- Level C: £2bn at +35bps, £4bn at +30bps, and **£500m at 15bps**

Allocation results:

	Level A	Level B	Level C
Bids received	6,000mn	0mn	6,500mn
Amount allocated	5,520mn	0mn	3,680mn
Clearing spread	15bps	n/a	30bps
Scaling ratio for marginal bids	88%	n/a	42%

- The allocation has increased further to £9.2bn in total.
- The allocation was split between Levels A and C, reflecting an increase in demand on both collateral sets.
- Bidders on Level A at +20bps were allocated in full and paid the clearing spread of +15bps; Level C bidders at +35bps were allocated in full and paid the clearing spread of +30bps.
- Marginal bids on Level A at +15bps and bids on Level C at +30bp were scaled.
- **Bidders on Level C at +15bps did not receive any allocation**



Scenario 4 – Bid sizes and prices increase further

- Participants demand more funding and are prepared to increase the spread for it.
- The operation expands significantly.
- Most bids are now allocated.



Scenario 4 – Increased bid sizes and prices on Level A and C

Total bids received:

- £6bn on Level A at +50bps and £6bn on Level A at +40bps
- £8bn on Level C at +85bps and £8bn on Level C at +75bps

Allocation results:

	Level A	Level B	Level C
Bids received	12,000mn	0mn	16,000mn
Amount allocated	9,282mn	0mn	12,818mn
Clearing spread	40bps	n/a	75bps
Scaling ratio for marginal bids	55%	n/a	60%

- The allocation has increased to £22.1bn in total.
- The auction recognised an increase in demand on Level A and C collateral sets, so increased the allocation to both.
- Bidders on Level A at +50bps were allocated in full and paid the clearing spread of +40bps; the Level C bidders at +85bps were allocated in full and paid +75bps.
- The other bidders were scaled.



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Bidding strategies



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Example 1 – A single bid

- You desire £6bn of funding.
- If you bid at the minimum spread:
 - The Bank will only allocate £5bn across all collateral sets at the minimum spreads.
 - In addition, there may be other participants competing for the allocation, so your bid may be scaled further, or you may receive nothing.
- If you are prepared to pay more than the minimum spread, you should bid at that level:
 - The auction will increase in size in response to the increased demand, so there is a greater chance that you will be allocated more, or all, of your bid.

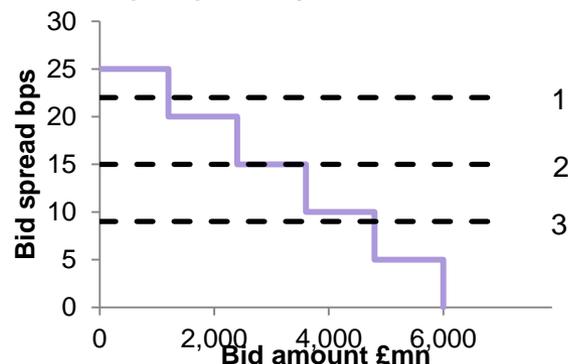


Example 2 – A ‘ladder’ of bids

- You enter multiple bids at a range of prices, which total £6bn. For example, you are willing to pay up to +25bps for the first £1.2bn, but if the auction clears at a cheaper price, you would be willing to take more funding.

Level A Collateral	
Spread (bps)	Amount (£mn)
+25	1,200
+20	1,200
+15	1,200
+10	1,200
+5	1,200

- You enter the following bids:



- We illustrate several possible outcomes:
 - If the auction clears at +22bps (indicated by line 1 on the chart), only your first bid will be allocated as you bid at +25bps, so **you will receive £1.2bn and pay +22bps.**
 - If the auction clears at +15bps (line 2 on the chart), your first 2 bids will be allocated in full, and your third bid will get 0%-100% of the amount, as it is equal to the clearing price. Therefore **you will receive £2.4-3.6bn, and pay +15bps for it.**
 - If the auction clears at +9bps (line 3 on the chart), your first 4 bids will be allocated, so **you will receive £4.8bn and pay only +9bps for it all.**
- So by “laddering” your bids, you can customise your allocation so that you receive more funding as the price becomes cheaper, but ensure that you receive some funding even if clearing prices are higher.



ILTR auction process - Key messages

The core principles to take away are:

- If spreads are higher, the auction will allocate more total liquidity.
- If higher spreads are bid against less liquid collateral, the auction will increase the proportion of liquidity allocated to less liquid collateral.

Therefore...

- You should bid at the maximum price you would be willing to pay for funding.
- You can ladder your bids, there is no limit on the number of bids.
- The ILTR auction is competitive and bids may be subject to scaling.



Further Information on the ILTR available

- **The Red Book** outlines the key features of the Bank of England Sterling Monetary Framework
- **Bank of England website** - [ILTR pages](#) including description of three collateral sets, and previous ILTR results (under 'Indexed Long-Term Repo OMOs by operation (XLSX)')
- **Quarterly Bulletin 18 June 2015** - [Innovations in the Bank's provision of liquidity insurance via Indexed Long-Term Repo Operations](#)
- ILTR operation process - [Example auction process](#)

