

## Chapter 5

### Curve Construction

#### 5.1 Curve Construction for Rates Derivatives Contracts

##### 5.1.1 Zero Coupon Yield Curves

OTC Clear uses zero coupon yield curves to generate discount factors for calculating the net present value of a Rates Derivatives Contract in order to determine marked-to-market (“**MTM**”) movements and Margin requirements in respect of such Rates Derivatives Contract.

##### 5.1.2 Market Instrument

The zero coupon yield curves are constructed using benchmark instruments that represent the most liquid part of the relevant yield curves, subject to their availability among different markets. Such benchmark instruments include, but are not limited to, deposits, interest rate futures, forward rate agreements, swaps, OIS and basis swaps. Benchmark instruments used in settlement curve construction may include, but are not limited to, the following:

Benchmark Instrument List	Type
O/N Interbank Money Market	Yield
T/N Interbank Money Market	Yield
1 week Interbank Money Market	Yield
2 week Interbank Money Market	Yield
1 month Interbank Money Market	Yield
2 month Interbank Money Market	Yield
3 month Interbank Money Market	Yield
6 month Interbank Money Market	Yield
0 x 3 forward rate agreement	Yield
0 x 6 forward rate agreement	Yield
2nd forward rate agreement	Yield
3rd forward rate agreement	Yield
4th forward rate agreement	Yield
5th forward rate agreement	Yield
6th forward rate agreement	Yield
1 month Swap	Yield
2 month Swap	Yield
3 month Swap	Yield
6 month Swap	Yield
9 month Swap	Yield

1 Year Swap	Yield
2 Year Swap	Yield
3 Year Swap	Yield
4 Year Swap	Yield
5 Year Swap	Yield
6 Year Swap	Yield
7 Year Swap	Yield
8 Year Swap	Yield
9 Year Swap	Yield
10 Year Swap	Yield
11 Year Swap	Yield
12 Year Swap	Yield
15 Year Swap	Yield
20 Year Swap	Yield
25 Year Swap	Yield
30 Year Swap	Yield

### 5.1.3 Market Sources

OTC Clear obtains quotes for the relevant benchmark instrument used in zero coupon yield curves construction from direct data feeds of appropriate market sources selected by OTC Clear (“**Relevant Market Sources**”), provided that, in respect Standard Northbound Derivatives Contracts, direct data feeds from the Special Clearing House Participant will be used exclusively unless market price(s) of the relevant benchmark instrument(s) is not provided by the Special Clearing House Participant at the relevant time, in which case, OTC Clear will refer to other Relevant Market Sources selected by it in its sole and absolute discretion.

Please contact OTC Clear for details of the Relevant Market Sources.

### 5.1.4 Construction of Zero Coupon Yield Curves

OTC Clear will construct zero coupon yield curves using bootstrapping methodology and apply interpolation techniques as OTC Clear may consider appropriate in its sole discretion. Please contact OTC Clear for details of the construction method and interpolation techniques used.

OTC Clear will update the relevant zero coupon yield curves using market prices of the relevant benchmark instruments obtained from the Relevant Market Sources at regular intervals during Margin Process Hours on each OTC Clear Clearing Day and Northbound Clearing Day for purposes of determining the Margin requirements in respect of each Rates Derivatives Contract. In order to ensure accuracy of a zero coupon yield curve, OTC Clear will compare the updated zero coupon yield curve against the corresponding zero coupon yield curve determined during the End-of-Day Settlement Process on the immediately preceding OTC Clear Clearing Day and, on the immediately preceding Northbound Clearing Day. Subject to availability and liquidity of the relevant benchmark instruments, curves constructed for discounting and rate forecasting could be different to allow for OIS discounting.

As part of the End-of-Day Settlement Process, OTC Clear will construct the relevant zero coupon yield curves for each Rates Derivatives Contract using the market price of the relevant benchmark instruments obtained at the End-of-Day Cut Off Time on each OTC Clear Clearing Day and Northbound Clearing Day, as applicable.

### 5.1.5 Market Data and Frequencies

OTC Clear obtains the prices for each of interest rate curves from the source(s) (each, a “**Source**”) and at the frequency (“**Frequency**”) set out below:

- (i) Interest rate curve:
  - (a) Source – OTC Clear
  - (b) Frequency – at regular intervals during the Margin Process Hours on each OTC Clear Clearing Day and Northbound Clearing Day
- (ii) PAI rates:
  - (a) Source – OTC Clear for all Contracts except Standard Northbound Rates Derivatives Contracts
  - (b) Frequency – once daily during the End-of-Day Settlement Process on each OTC Clear Clearing Day
- (iii) PAI amount for Standard Northbound Rates Derivatives Contracts
  - (a) Source – in respect of each Standard Northbound Rates Derivatives Contract, the PAI amount paid by the Special Clearing House Participant in respect of the Inter-CCP Rates Derivatives Contract with equal but opposite terms to (and which have been created to correspond to) such Standard Northbound Rates Derivatives Contract
  - (b) Frequency – once daily during the End-of-Day Settlement Process on each Northbound Clearing Day

## 5.2 Curve Construction for FX Derivatives Contracts

### 5.2.1 FX Curves

OTC Clear builds for each Currency Pair an FX Curve (zero coupon/market rate curve) to calculate the net present value of a FX Derivatives Contract in order to determine the MTM movements and Margin requirements in respect of such FX Derivatives Contract.

OTC Clear calculates such FX curves using FX spot rates, FX swap points, and interest rate curves relating to the relevant Currency Pair and also internal interpolation techniques. Interest rate curves are used for discounting, while FX curves are used for capitalization of forward cash flows.

As part of the End-of-Day Settlement Process (as defined in section 4.7 of the Clearing Procedures), OTC Clear constructs the relevant FX curves using prices of the relevant market data obtained at End-of-Day Cut Off Time (as defined in section 4.7 of the Clearing Procedures) on each OTC Clear Clearing Day. Data relating to FX spot rates and FX swap points are used in the calculation of risk analytics during the End-of-Day Settlement Process.

OTC Clear will update the relevant FX curves using market prices of the relevant market data obtained from the Sources set out in section 5.2.2 regularly during Margin Process Hours (as defined in section 1.3 of the Clearing Procedures) on each OTC Clear Clearing Day.

In order to ensure accuracy of a FX curve, OTC Clear will compare the updated FX curve against the corresponding FX curve determined during the End-of-Day Settlement Process on the immediately preceding OTC Clear Clearing Day.

### 5.2.2 Market Data and Frequencies

OTC Clear obtains the prices for each of FX spot rates, FX swap points and interest rate curves from the source(s) (each, a “**Source**”) and at the frequency (“**Frequency**”) set out below:

- (i) FX spot rates:
  - (a) Source – received by OTC Clear through a live link from the Relevant Market Source(s)
  - (b) Frequency – at regular intervals during the Margin Process Hours on each OTC Clear Clearing Day
- (ii) FX swap point:
  - (a) Source – received by OTC Clear through a live link from the Relevant Market Source(s) for each Tenor set out below
  - (b) Tenor (“**Tenor**”) – may include, but are not limited to, the tenors shown in the list below:

<b>Tenor</b>
S/N
1 week
2 weeks
1 month
2 months
3 months
6 months
9 months
1 year
2 years
3 years
4 years
5 years

- (c) Frequency – at regular intervals during the Margin Process Hours on each OTC Clear Clearing Day
- (iii) Interest rate curve:
  - (a) Source – OTC Clear
  - (b) Frequency – at regular intervals during the Margin Process Hours on each OTC Clear Clearing Day
- (iv) PAI rates:

- (a) Source – OTC Clear
- (b) Frequency – once daily during the End-of-Day Settlement Process on each OTC Clear Clearing Day