

Framework for AIs' assessment of customers' expected exposure to FX accumulators

Currency pair	Minimum expected exposure percentage	
	For AIs which have methodologies satisfying the conditions	For AIs that do <u>not</u> have relevant methodologies
USDHKD (pegged currency pair)	2%	
HKD or USD against one of eight other major currencies (see Note 1)	40%	100%
Other currency pairs	100%	

Note 1: Eight other major currencies refer to Euro, UK Pound Sterling, Australian dollar, New Zealand dollar, Canadian dollar, Swiss Franc, Japanese Yen, and Renminbi (both CNY and CNH). There are a total of 19 combinations of currency pairs. The expected exposure measurement of asset concentration should only be applied to FX Accumulators involving HK dollar or US dollar as at least one leg of the currency pair.

Three Scenarios of Currency Pair:

I. For currency pair of USDHKD: 2%

Since US dollar and HK dollar are linked, the minimum expected exposure percentage is to be set at 2% of the notional amount for USDHKD FX Accumulators.

II. For currency pair involving either HKD or USD against one of eight other major currencies: 40%

For AIs which have reasonable methodologies and adequate controls (that **satisfy all the pre-conditions** as set out below) in place for calculating the expected loss of their FX Accumulators offered to customers, they may use their methodologies to calculate the “expected exposure” (subject to a minimum of 40% of the notional amount) in assessing customers' asset concentration.

For the avoidance of doubt, exposure in measuring concentration risk of FX Accumulators, after applying the expected exposure percentage, will be:

Maximum of the 2 figures: (Notional per fixing x Minimum Expected Exposure Percentage x number of fixings x gearing multiplier (if any)) and expected exposure calculated by AI

Pre-conditions that should be satisfied for using expected exposure (instead of full notional)

- (1) *Reasonable methodologies and parameters: In order to use expected exposure (instead of full notional) in measuring concentration risk in FX Accumulators as described in the table above (except for USDHKD which is linked), AIs should adopt prudent and reasonable methodologies in calculating the expected loss of their customers' FX Accumulators based on historical data and/ or other simulations. The methodologies adopted by AIs should observe the below guiding principles:*
 - (i) *reasonable size and coverage of data reference – e.g. where historical data are used, observation period should be reasonably set and should include the most volatile periods; where Monte Carlo simulation is used, there should be meaningful and sufficient number of paths (i.e. at least 5,000 paths);*
 - (ii) *If the following parameters are involved in the AI's methodology, the parameters used should fulfil the standards as set out below:*
 - *the time interval-volatility parameter to be used for calculation (e.g. 30-day volatility, 260-day volatility etc) should approximate the duration of the respective fixing from trade date or be more prudent. If there is no exact time interval-volatility matching with the length of a certain fixing, then the time interval-volatility parameter which approximates the duration of the respective fixing or with higher volatility should be used. To illustrate with two examples: the relevant number of trading days for the 3rd fixing and for the 12th fixing are around 65 and 260 trading days. Hence, for the 3rd fixing of a monthly fixing accumulator, the 60-day (trading days) volatility should be used (since usually there is no "65-day volatility" data, the "60-day volatility" is close to the actual trading days of 65). Similarly for the 12th fixing, the 260-day (trading days) volatility should be used. AIs should not simply use a 360-day (trading days) volatility for all the respective fixing because the use of 360-day (trading days) volatility would distort the expected exposure;*
 - *since holding period used in the calculation would affect the calculated expected exposure, the holding period used for each fixing should be at least measured from the trade date to the respective fixing date. To illustrate with an example: for the 3rd month fixing, the holding period should be at least 3 months. AIs should not simply use one month holding period for all the respective fixing because this would distort the expected exposure; and*
 - *a confidence level of at least 99.9% should be adopted.*

- (2) *On-going calculation of expected loss: AIs should also calculate the expected loss with updated data both on a regular (at least quarterly) basis and when there have been significant changes in the market (e.g. when the market becomes highly volatile) or changes to the structure of FX Accumulators. Should an expected loss resulting from the periodic or ad hoc review be higher than the 40% minimum threshold as set out above, AIs should use the higher expected loss for new FX accumulator transactions in assessing asset concentration. Higher expected loss should also be used for existing FX accumulator transactions for the purpose of assessing relevant exposures on an aggregate basis.*
- (3) *Verification of the calculated expected loss: The accuracy and reliability of an AI's expected loss calculation should be verified against the actual results (e.g. daily marked-to-market losses) through regular (at least quarterly) back-testing by independent control units. The AIs should also have a process to analyse exceptions identified through the back-testing. This process is intended to uncover any problem with the methodologies used in calculating the expected loss. The methodologies (including the underlying assumptions) in calculating the expected loss of FX Accumulators should also be subject to periodic review to reflect changing market conditions.*
- (4) *Policies and controls: Proper policies, procedures and controls should be in place for the measurement of expected exposure for the purpose of concentration risk assessment of FX Accumulators.*

For AIs which do not have the methodologies and relevant controls satisfying **all** of the above conditions in calculating the expected loss of its FX Accumulators offered to customers, full notional should continue to be adopted in measuring concentration risk.

III. For any other currency pairs: Full notional (i.e. 100%)

For other currency pairs, full notional (i.e. 100%) should continue to be adopted in calculating the exposure of FX Accumulators in measuring concentration risk.