

APPENDIX 15A: FVA formula and discounting

This is analogous to the definition of ColVA in Appendix 13A. Defining FVA as the different between discounting at a cost of funding compared to discounting at some base rate, we get:

$$FVA = - \sum_i EV_{t_{i-1}} \{ \exp[-s_{t_{i-1}} \cdot t_{i-1}] - \exp[-s_{t_i} \cdot t_i] \}$$

where s represents the funding spread between the cost of funding and base rate and the term $\{ \exp[-s_{t_{i-1}} \times t_{i-1}] - \exp[-s_{t_i} \times t_i] \}$ can be considered to be a forward funding spread. This is Equation 15.2 in the book and represents the discrete impact of funding cashflows. The consideration of funding more continuous collateral payments leads to an integral representation.

APPENDIX 15B: LCR Impact on FVA Formula

Suppose we have an uncollateralised portfolio with an associated FBA term. However, there is a requirement to post collateral in the event of a downgrade in our own credit rating. Furthermore, we must hold HQLAs against this possibility. We could consider that the FBA is reduced with a funding spread of:

$$s^* = s - (1 - Q) \times s^{HQLA} - Q \times s^{dg}$$

where s is the standard funding spread, s^{HQLA} is the funding spread associated with holding HQLAs and s^{dg} the funding spread if downgraded.

The above is simplistic as it does not consider the impact of multiple downgrades and HQLA requirements with different numbers of notches.