

# CVA Calculation for an Interest Rate Swap

In this report we do following:

1. Describe how to calculate the credit valuation adjustment taken by Counterpart A to the price of an interest rate swap using credit spreads for Counterparty B.
2. Plot MtM values and produce :
  - A smoothed Expected Exposure profile. While EE is defined as  $\text{Max}(\text{MtM}_{\{\tau\}}, 0)$ , we experiment with exposure distributions(s) at each tenor. Produce smoothed Potential Future Exposure(s) using such indicators as
  - The median of positive exposure
  - 97.5th percentile

## Input for IRS Valuations are :

1. Forward LIBORs
2. Discounting Factors (DF)
3. Default probabilities (PDs)

## Assumptions

- The IRS is assumed to be written on a 6M LIBOR  $L_{\{6M\}}$  expiring in 5Y, hence the payment frequency is  $\tau=0.5$
- The notional is assumed to be  $N=1$
- Recovery rate 40%

## Default Probabilities (PDs)

Default Probabilities are calculated from CDS spreads using the bootstrapping in excel 'PD CDS Bootstrapping.xlsx.'