

CDS 평가로직 설명서

1. Caplet, Floorlet

- ① **Caplet is a call option on forward LIBOR(SOFR) $f_t(T, T + \Delta t)$ which becomes spot LIBOR(SOFR) at the maturity date T.**

$$c(0) = \Delta t \times P(0, T + \Delta T) [f_0(T, T + \Delta t)N(d_1) - XN(d_2)]$$

$$N(y) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^y e^{-\frac{z^2}{2}} dz$$

$$d_1 = \frac{\left(\ln \left(\frac{f_0(T, T + \Delta T)}{X} \right) + \frac{1}{2} v^2 T \right)}{v\sqrt{T}}, d_2 = d_1 - v\sqrt{T}$$

- ② **Floorlet is put option on forward LIBOR(SOFR) $f_t(T, T + \Delta t)$ which becomes spot LIBOR(SOFR) at the maturity date T.**

$$p(0) = \Delta t \times P(0, T + \Delta T) [-f_0(T, T + \Delta t)N(-d_1) + XN(-d_2)]$$

2. Cap, Floor

- ① **Cap(Floor) is a portfolio of Caplet(Floorlet).**

$$② \quad C(0) = \sum_{i=1}^N \Delta(T_{i-1}, T_i) \times P(0, T_i) [f_0(T_{i-1}, T_i)N(d_1) - XN(d_2)]$$

$$③ \quad P(0) = \sum_{i=1}^N \Delta(T_{i-1}, T_i) \times P(0, T_i) [-f_0(T_{i-1}, T_i)N(-d_1) + XN(-d_2)]$$