$$d_1 = \frac{\ln\left(\frac{S_t}{K_r}\right) + \frac{1}{2}(\sigma_t^{AC})^2(T_{R+1} - t)}{\sigma_t^{AC}\sqrt{T_{R+1} - t}}$$

$$d_2 = \frac{\ln\left(\frac{S_t}{K_r}\right) - \frac{1}{2}(\sigma_t^{AC})^2(T_{R+1} - t)}{\sigma_t^{AC}\sqrt{T_{R+1} - t}}$$

σ_t^{AC} is the after cost implied volatility of the relevant option and it is obtained from the implied volatility of the relevant exchange traded option as

$$\sigma_t^{AC} = \sigma_t - \max(4\% * \sigma_t, 0.75\%)$$

Where, σ_t is the volatility of the call option which has strike K_r and is calculated using standard Black's model.

K_r = Option strike. It is the integer value closest to the at the money forward future price on the rebalance date r. For avoidance of any doubt, the strike will be rounded up in case of a tie.

Main index Calculation

DB Commodity WTI Short Volatility II Index is calculated on each valid London city business day as follows,

$$IL(t, ER) = IL(t-1, ER) + \sum_{i=1}^{3}[I(i,t,ER) - I(i,t-1,ER)] \times N(t-1,i)$$

Where:

IL(t,ER) = Index level of DB Commodity WTI Short Volatility II Index on day t

I(i,t,ER) = Index level of sub index i on day t

N(t,i) = Notional holdings of sub index i on day t

Notional Holdings

The index rebalances on the option expiry date of Z contract of WTI Crude every year. On any other day the notional holdings remain constant,

$$N(t,i) = N(t-1,i)$$

It t is the rebalancing date

$$N(t,i) = \frac{IL(t,ER)}{3 * (I(i,t,ER)}$$