THE MATH BEHIND THE METHODOLOGY



Quote in "Volatility Strike" & "Vega" - Transform to "Variance Strike" & "Variance Unit"

$$\frac{\text{Variance}}{\text{Strike}} = \frac{252}{N_e - 1} \times \text{(volatility strike}^2 \times \frac{(N_e - 1 - n)}{252} + \sum_{i=1}^{n} R_i^2 \text{)} \qquad \frac{\text{Variance}}{\text{Unit}} = \frac{notional \, Vega}{2 \times volatility \, strike} \times \frac{N_e - 1}{100} \times \frac{N_e - 1}{(N_e - 1 - n)}$$

Strike Compression - Convert to Listed Strikes

$$F_{t} = DF(t,T)(k-k_{0}) - ARMVM + C$$

$$DF(t,T) \text{ is a discount factor from time t to maturity (T)}$$

$$When t = 0, ARMVM \text{ (Accumulated return on modified variation margin)} = 0$$

$$Otherwise, ARMVM = \sum_{s=0}^{r-1} (F_{s} - C) \times B_{s+1,t} \times R_{s} / 365$$

$$C \text{ is a constant}$$
*DF, ARMVM, C provided by exchange

Illustrated View

