**Crank-Nicolson method for vanilla TRS**

**I – Fully implicit method/CK method**

Contrary to previously highlighted explicit method, implicit method discretization leads to following formulas for TRS:

But contrary to option’s equation and due to delta one characteristics, the target discretization is highly simplified without the usual linear equations system solver:

Then this methodology in vanilla TRS context can be seen as an “exercise” or POC, in order to show that algorithm/methodology also works for TRS.

Still du to simplified formula and hence simplified discretization, fully implicit and Crank-Nicolson method are equal.

**II – Program of study – numerical results**

* The model will be developed through python and C++ through finite difference method using CK scheme.
* Output value should be like explicit scheme.