Gu 2012

3. $NPV = -5{,}000{,}000 + \left(\frac{150{,}000}{r(\frac{1}{12}) - .01}\right)\left(1 - \left(\frac{1.01}{1+r(\frac{1}{12})}\right)^{65}\right)\left(\frac{1}{1+r(\frac{1}{12})}\right)^{7}$ (42)

$r(1) = .0005 + 1.5(.07) = .1055$ (18)

$r(\frac{1}{12}) = (1+r(1))^{\frac{1}{12}} - 1$ (15)

4. $P = PV(k)(1-N(d_2)) - S(1-N(d_1))$

$d_1 = \frac{\ln(\frac{S}{PV(k)})}{\sigma\sqrt{T}} + \frac{\sigma\sqrt{T}}{2}$

$d_2 = d_1 - \sigma\sqrt{T}$

$S^x = \left(\frac{150{,}000}{r(\frac{1}{12}) - .01}\right)\left(1 - \left(\frac{1.01}{1+r(\frac{1}{12})}\right)^{65}\right)\left(\frac{1}{1+r(\frac{1}{12})}\right)^{7}$ (23)

$- \left(\frac{150{,}000}{r(\frac{1}{12}) - .01}\right)\left(1 - \left(\frac{1.01}{1+r(\frac{1}{12})}\right)^{17}\right)\left(\frac{1}{1+r(\frac{1}{12})}\right)^{7}$

$= \left(\frac{150{,}000(1.01)^7}{r(\frac{1}{12}) - .01}\right)\left(1 - \left(\frac{1.01}{1+r(\frac{1}{12})}\right)^{48}\right)\left(\frac{1}{1+r(\frac{1}{12})}\right)^{24}$

$PV(k) = \frac{1{,}500{,}000}{(1.00244)^{24}}$ (26)

$\sigma = .45$

$T = 2$

$r(\frac{1}{12})$ = same as problem 3

$N(d_1)$ & $N(d_2)$ from tables or Excel