Hw 1.4

Friday, September 13, 2024 12:12 PM

Task 4

6 month : $94
12 month : $89
18 month : $94.84 . $4 every 6 months
24 month : $97,12 $5 ever 6 months

Assum current valve wold be 100 and Continous compounding

$$PV = FVe^{-r \cdot n}$$

$$r = \frac{\ln\left(\frac{PV}{F}\right)}{n}$$

$$r_{6\,month} = \frac{\ln\left(\frac{100}{94}\right)}{0,5} = 12,38\,\%$$

$$r_{12\,month} = \frac{\ln\left(\frac{100}{89}\right)}{1} = 11,65\,\%$$

with Semi annual Capon rate

$$PV = (FHC)Ve^{-rn} + C\sum^{n-1} e^{-rn}$$

$$94,84 = 4e^{-\frac{0,1238}{2}} + 4e^{-0,1165} + 104e^{-r \cdot 1,5}$$

$$94,84 = 104e^{-r \cdot 1,5} + 7,32$$

$$r_{18\,month} = \frac{\ln\left(\frac{94,84 - 7,32}{104}\right)}{1,5} = 11,53\,\%$$

$$r_{\text{a month}} = \frac{\ln\left(\frac{97.12 - 13.36}{105}\right)}{2} = 11.28\%$$