Homework 2

Friday, September 20, 2024 8:57 AM

Problem 1

a) Forward price of forward contract:

$F = S_0 \cdot e^{rt} = \$\ 42,05$

The initial value of the forward contract is 0 value for both parties

b) Given the change in conditions the new price is

$F = S_{6\text{months}} \cdot e^{rt} = 45 \cdot e^{0.05 \cdot \frac{1}{2}} = \$46,14$

The initial value of the contract is now:

$V_{6\text{months}} = S_{6\text{mths}} - K \cdot e^{-r(T-t)} = 45 - 42 \cdot 0,5 \cdot e^{-0,05/2} = \$\ 3,99$

Problem 2

a) with cash dividend

$D = de^{r \cdot t_0} + de^{r \cdot t_1} = 2,462 + 2,89 = \$5,85$

$f_0 = (40 - 5,85)\, e^{0,05} = 35,90$

The initial value is still 0 for the contract

b) when the stock price changes

Forward price:

$F = (S - Div) \cdot e^{r(T-t)} = (45 - 3e^{-0.025}) \cdot e^{0,025} = 43,10$

value of forward contract

$V_{6\text{mths}} = (S - Div) - f_0 e^{-r(T-t)} = (45 - 3e^{-0.025}) - 35,90 \cdot e^{-0,025} = 7,01$