

QUESTION

Calculate the initial premium and the trading strategy for the asset/bond replicating portfolio for a European call option on the following data:

Strike \$50; Maturity 1 year, two intervals;  
 Continuously compounded annual risk-free rate 5%;  
 Volatility 30%; Current price \$50.

What do you deduce about the way the premium behaves with the volatility for a call option?

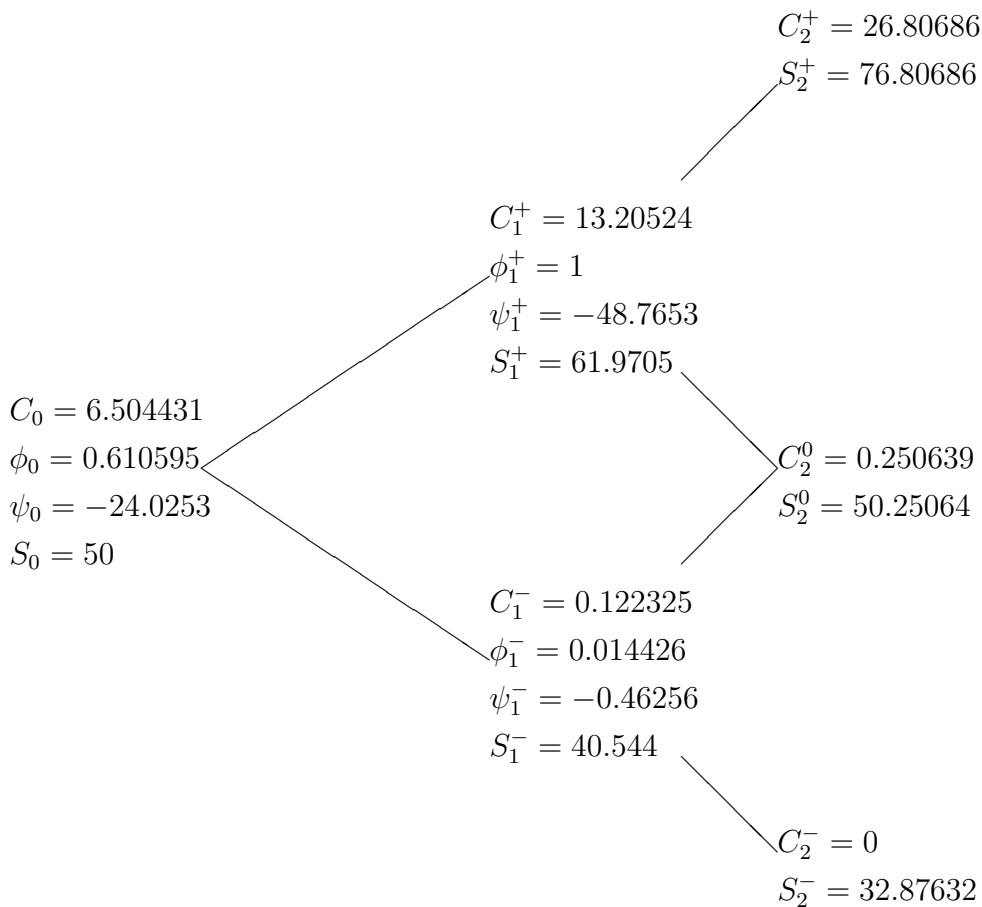
ANSWER

$k = 50$ ,  $r = 0.05$ ,  $\sigma = 0.3$  (higher than question 3),  $S_0 = 50$  (different from question 1),

$U =$  same as question 1 = 1.23941,

$D =$  same as question 1 = 0.81088

Eurocall Summary:



$C_0$  increases with  $\sigma$  increasing. Logic: more volatility=more risk=more insurance needed=higher premiums.